Radio + Air Law – Oct. 26

Manuals and Books – pg. 107

1. **Canadian Aviation Regulation** → Contains all the rules and regulations pertaining to operation of aircraft in Canada. Some topics include: licensing, registration, visual flight rules, etc.
2. **Aeronautical Information Manual (A.I.M)** → Contains information from the CAR as well as more updated aeronautical information since **it is updated twice a year**
3. **Canada Flight Supplement** → Contains essential information for all Canadian aerodromes. It also contains route planning information, communications information, and basically everything a VFR or IFR pilot needs. Aerodromes in the manual are divided by letters – for ex. CYYZ – Toronto Pearson Airport. **It is updated every 56 days!**

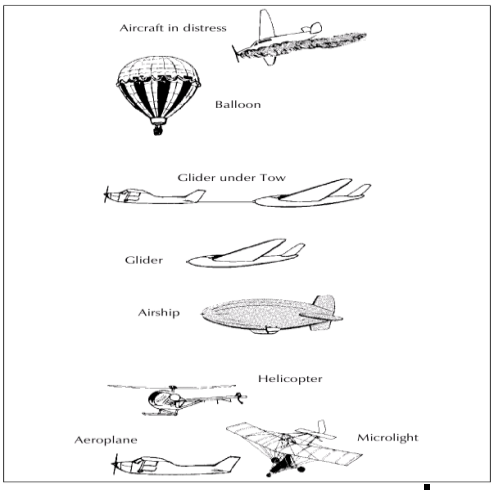
Documents Needed on the Aircraft – pg. 107

All of the following in the acronym (AROWJILI) are needed on the aircraft:

- **A** → Certificate of **A**irworthiness → Document is used to show if the aircraft is within regulations and contains necessary equipment in order to fly.
- **R** → Certificate of **R**egistration → Document contains the name of the owner of the aircraft and the 4 letter registration number of that aircraft (ex. C-GGBN)
- **O** → Pilot **O**perating Handbook → Contains everything you need to know about the specific aircraft – airspeeds, equipment, emergency procedures, etc. Not all POH's are the same, for every different type of aircraft there is a different POH. Ex. Cessna 172 POH contains similar, but different information from a Cessna 152 POH.
- **W** → **W**eight and Balance → Contains specific information to weight (passengers, baggage, etc) and centre of gravity.
- **J** → **J**ourney Log → It is used to keep track of the amount of hours the plane flew.
- **I** → **I**nsurance → Document that shows that the pilot or flight centre will get full compensation in the event of an accident
- **L** → **L**icenses → Pilot must have: pilot's license, radio operator's license, category 3 medical certificate, student pilot permit (only carried if they are learning to fly and the person does not have a pilot's license. It is under the supervision of the student pilot's instructor).
- **I** → **I**ntercept Orders → In the case of the pilot going into restricted area, they may use the intercept orders to follow the procedure when an aircraft follows them through that area.

- *Technical Log* → Not needed on the aircraft, however it is used by mechanic to update all mechanical tasks and hours of the plane.

Right – Of - Way – pg. 108 – See Diagram →



1. Fixed or free balloons
2. Gliders
3. Airships
4. Power-driven fixed wing or rotary wing airplanes

ALL AIRCRAFT WILL GIVE WAY TO ANY AIRCRAFT IN DISTRESS

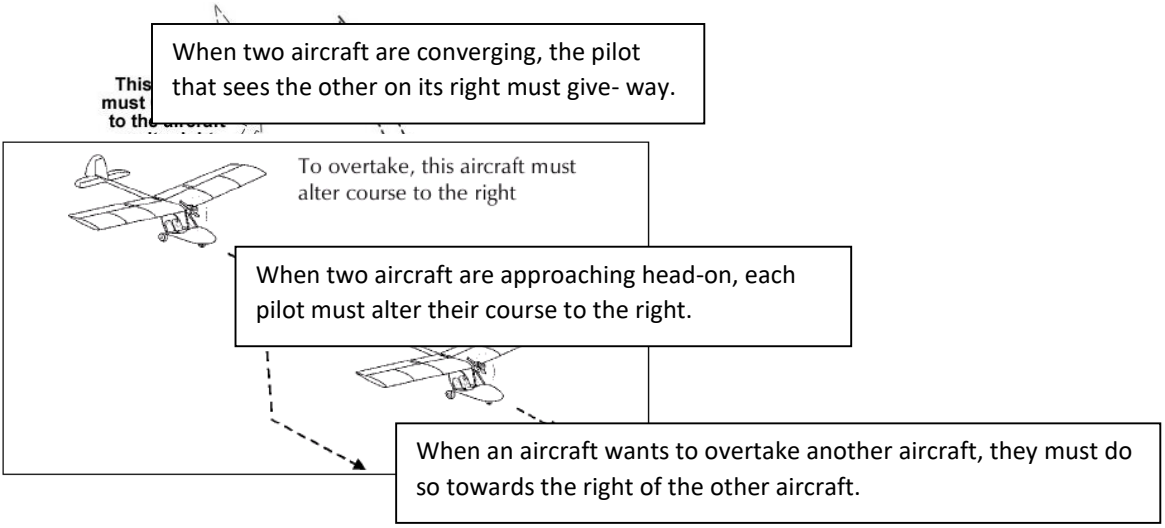
Pilot's License – pg. 108

Unless you have a pilot's license you cannot act as the pilot-in-command (PIC) or co-pilot – valid only for the particular class and type of aircraft as stated in license. Therefore, even though you have a private pilot's license for powered fixed-wing, single-engine aeroplane – you are not authorized to fly multi-engine aircraft or seaplanes).

Time period	**F**
6 months – carry passengers	5
2 years	Completed a recurrent training program (ie: Transport Canada seminar, completed a license or rating)
5 years	Flown as PIC or co-pilot

Rules of the Air – pg. 108

1. Over built up area (city, town, village, assembly of persons), an aircraft must be flown at any altitude above 1000 feet from the highest obstacle and within a radius of 2000 feet
2. Over rural areas, an aircraft must be flown at any altitude about 500 feet from the highest obstacle, person, vessel, vehicle, etc.
3. *Obviously, this rule is ignored when taking off and landing at aerodromes.



When two aircraft are converging, the pilot that sees the other on its right must give- way.

When two aircraft are approaching head-on, each pilot must alter their course to the right.

When an aircraft wants to overtake another aircraft, they must do so towards the right of the other aircraft.

Others

- If two aircraft are approaching for landing, the higher aircraft must give way

More Rules of the Air – pg. 108-109

Fuel Requirements → During the **day**, any aircraft must have enough fuel to get to their destination plus **30** additional minutes of flying. During the **night**, any aircraft must have enough fuel to get to their destination plus **45** additional minutes of flying.
Over-water Flying→ It can only be conducted when the aircraft is within gliding distance to land. If beyond 50 nautical miles, it must be equipped with life jackets for every person
Can a pilot drop items from their aircraft? → NO!

Definition of Day → any period of time during which the centre of the sun is more than 6 degrees above the horizon
Definition of Night → any period of time during which the centre of the sun is more than 6 degrees below the horizon

Flight Plan:
- Filed when flying beyond 25 nautical miles (VFR)
- Filed with an ATC or FIC
- Provides cross country route information as well as aircraft specific details that would aid if pilot is lost
- Search and rescue **WILL BE** notified after 1 hour overdue

Flight Itinerary:
- Less formal than a Flight Plan
- Filed with a responsible person
- Search and rescue **WILL BE** notified after 24hrs overdue

Air Traffic Control Clearance→ Authorization by an ATC unit for an aircraft to proceed within controlled airspace under specified conditions. Once accepted, it must be executed unless you make alternate arrangements. "YOU MAY"

Air Traffic Control Instruction→ A directive issued by an ATC unit for an aircraft to follow exact instructions. "YOU MUST"

Visual Flight Rules (VFR)→ The rules which apply when flying with visual reference to the ground

Instrument Flight Rules (IFR)→ The rules which apply when flying by means of reference instruments

Special VFR→ When in control zones, ATC may authorize pilots to fly under weather conditions below VFR minima. Must be requested by the pilot. Ground/Flight visibility must not be less than 1 mile, clear of cloud. Pilot must see ground at all times.

VFR Over The Top (VFR OTT)→ Allows a pilot to conduct a flight in VFR conditions above the cloud layer. The pilot must have this specific rating on his/her license.

Cruising Altitude→ Made so that depending on the direction the pilot heads, their altitude will change by the thousands. See diagram on last page.

Weather Minima→ Specifications on the visibility the pilot must have as it pertains to distances from cloud in different areas. See diagram on last page.

Domestic Airspace & Altimeter Regions – pg. 98-99

The Canadian Airspaces are separated into two because as you fly northerly, the compass needle starts to point downward due to the strength of the north magnetic pole. Thus, it makes the compass unreliable for the pilot. When following a true track, the pilot will correct it by using the magnetic compass than adding east or west variations. Magnetic track refers to not needing to do any corrections and to just use the magnetic compass.

Northern Domestic Airspace

- All aircraft operating in this area must fly at an altitude that is appropriate for their direction of flight as determined by **TRUE** track calculations
- Runway numbering and surface wind are reported in degrees **TRUE**

Southern Domestic Airspace

- All aircraft operating in this area must fly at an altitude that is appropriate for their direction of flight as determined by **MAGNETIC** track calculations
- Runway numbering and surface wind are reported in degrees **MAGNETIC**

Altimeter Setting Region (up to, but not including 18, 000 feet)

A) Take-off, cruise, & landing → current of nearest altimeter setting of airport (or elevation setting)

Standard Pressure Region (altitude higher than 18, 000 feet)

A) Take-off & landing → current altimeter setting of airport (or elevation setting)

B) Cruising → set to the Standard Pressure (29.92" Hg)

Domestic Airspace & Altimeter Regions – pg. 99-101

Uncontrolled Airspace

- Aircraft may operate free from an ATC unit
- Pilot must always advise this enroute frequency: **126.7MHz**

Controlled Airspace

- Airspace in which ATC service is provided and within which some or all aircraft may be subjected to air traffic control
- Ex. High Level or Low Level Airspace

Low Level Airspace

- Comprises all airspace within the Canadian Domestic Airspace **below 18, 000** feet ASL (above sea level)
- Includes: Control zones, terminal control areas, transition areas, low level airways

High Level Airspace

- Comprises all airspace within the CDA **above 18, 000 feet ASL**
- Includes: Southern Control Area, Northern Control Area, Arctic Control Area

Radio Communication – pg. 229

Priority of Communication:

1. Emergency communication (PIC only, grave or imminent danger)
   MAYDAY MAYDAY MAYDAY → 121.5MHz
2. Flight Safety Communications (safety of aircraft, person, or within sight)
   PANPAN PANPAN PANPAN
3. Scheduled broadcasts
4. Unscheduled broadcasts (safety of navigation, meteorological warnings)
   SECURITE SECURITE SECURITE
5. Other air-ground communication

Classification of Canadian Airspace – pg. 101-105

Canadian Domestic Airspace is further divided into seven classifications: A, B, C, D, E, F, G. Due to the specificity of each class, please read further in FTGU.

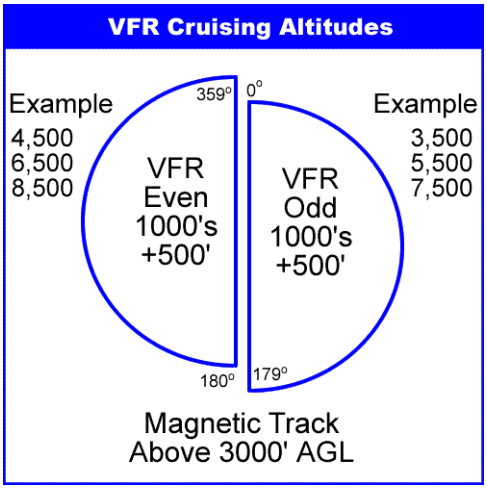


Figure 2.7 – VFR Weather Minima*

AIRSPACE		FLIGHT VISIBILITY	DISTANCE FROM CLOUD	DISTANCE AGL
Control Zones		not less than 3 miles**	horizontally: 1 mile vertically: 500 feet	vertically: 500 feet
Other Controlled Airspace		not less than 3 miles	horizontally: 1 mile vertically: 500 feet	–
Uncontrolled Airspace	1 000 feet AGL or above	not less than 1 mile (day) 3 miles (night)	horizontally: 2 000 feet vertically: 500 feet	–
	below 1 000 feet AGL – fixed-wing	not less than 2 miles (day) 3 miles (night) (see Note 1)	clear of cloud	–
	below 1 000 feet AGL – helicopter	not less than 1 mile (day) 3 miles (night) (see Note 2)	clear of cloud	–

Phonetic Alphabet + Numbers

A - Alfa
B - Bravo
C - Charlie
D - Delta
E - Echo
F - Foxtrot
G - Golf
H - Hotel
I - India
J - Juliet
K - Kilo
L - Lima
M - Mike
N - November
O - Oscar
P - Papa
Q - Québec
R - Romeo
S - Sierra
T - Tango
U - Uniform
V - Victor
W - Whiskey
X - X-ray
Y - Yankee
Z - Zulu

0	ZE RO
1	WUN
2	TOO
3	TREE
4	FOW ER
5	FIFE
6	SIX
7	SEV EN

8	AIT
9	NIN ER
Decimal	DAY SEE MAL
Hundred	HUN DRED
Thousand	TOU SAND

Word or Phrase	Meaning
ACKNOWLEDGE	Let me know that you have received and understood this message.
AFFIRM	An expression used in radiocommunication meaning "Yes."
BREAK	Indicates the separation between portions of the message. (To be used where there is no clear distinction between the text and other portions of the message.)
CLEARED	Authorized to proceed under the conditions specified.
CONFIRM	Have I received the following ... or Did you receive the message?"
CORRECTION	An error has been made in this transmission (or message indicated). The correct version is ....
DISREGARD	Consider this transmission as not sent.
GO AHEAD	Proceed with your message.
HOW DO YOU READ?	What is the readability of my transmission?
I SAY AGAIN	An expression used in radiocommunication meaning "I repeat for clarity or emphasis."
MAYDAY	An expression meaning "I am in distress." It is the international radiotelephony distress signal. Preferably spoken three times, it indicates imminent and grave danger and means that immediate assistance is requested.
MAYDAY RELAY	The spoken word for the distress relay signal.
MONITOR	Listen (on frequency).
NEGATIVE	No, or that is not correct, or I do not agree.
OUT	Conversation is ended and no response is expected.

OVER	My transmission is ended and I expect a response from you.
PAN PAN	The international radiotelephony urgency signal. Preferably spoken three times, it indicates a condition that concerns the safety of an aircraft o ranother vehicle, or some person on board or within sight, but that does not require immediate assistance.
READ BACK	Repeat all, or the specified part, of this message back to me exactly as received.
ROGER	I have received all of your last transmission.
ROGER NUMBER	I have received your message Number _____.
SAY AGAIN	An expression used to request a repetition of the last transmission.
STANDBY	I must pause for a few seconds or minutes. Please wait and I will call you.
SEELONCE	International expression to indicate that silence has been imposed on the frequency due to a distress situation.
SEELONCE FEENEE	International expression to indicate that the distress situation has ended.
SEELONCE MAYDAY	An international expression to advise that a distress situation is in progress. The command comes from the station in control of the distress traffic.
WILCO	Your instructions received, understood and will be complied with.
WORDS TWICE	(a) As a request: Communication is difficult, please send each word, or group of words, twice; (b) As information: Since communication is difficult, I will send each word, or group of words, twice.