RADIO & AIR LAW
PART II

THE ENGINE IS THE HEART OF AN AIRPLANE, BUT THE PILOT IS ITS SOUL.

THE BAD NEWS IS TIME FLIES. THE GOOD NEWS IS YOU'RE THE PILOT.

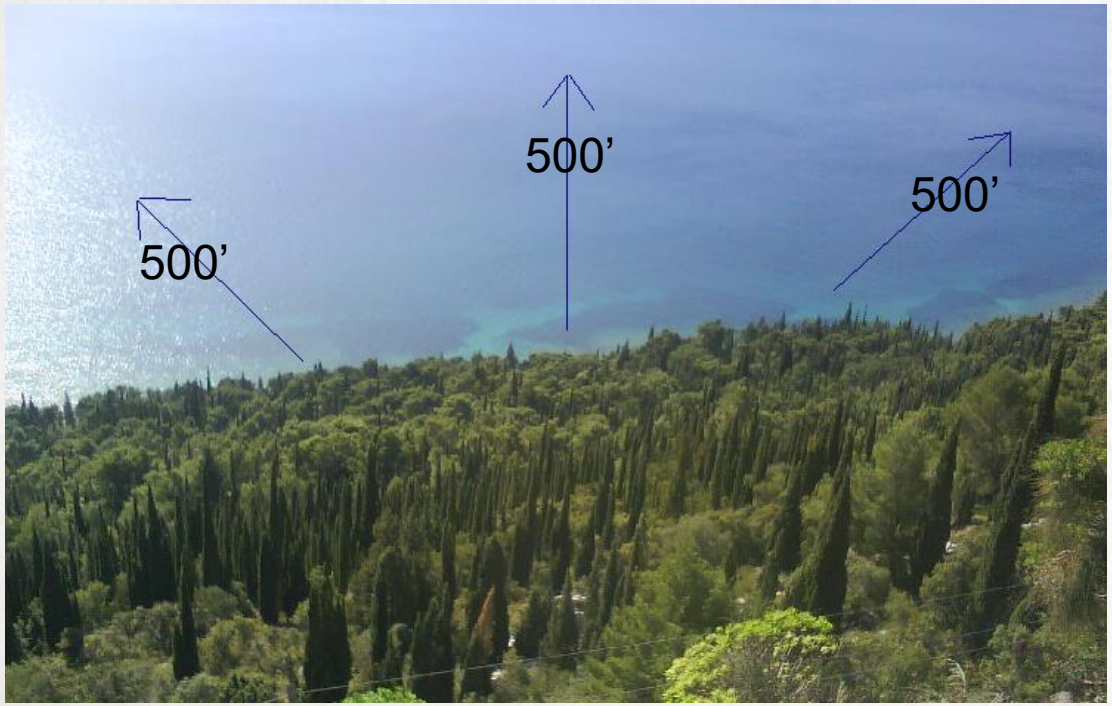
REVIEW

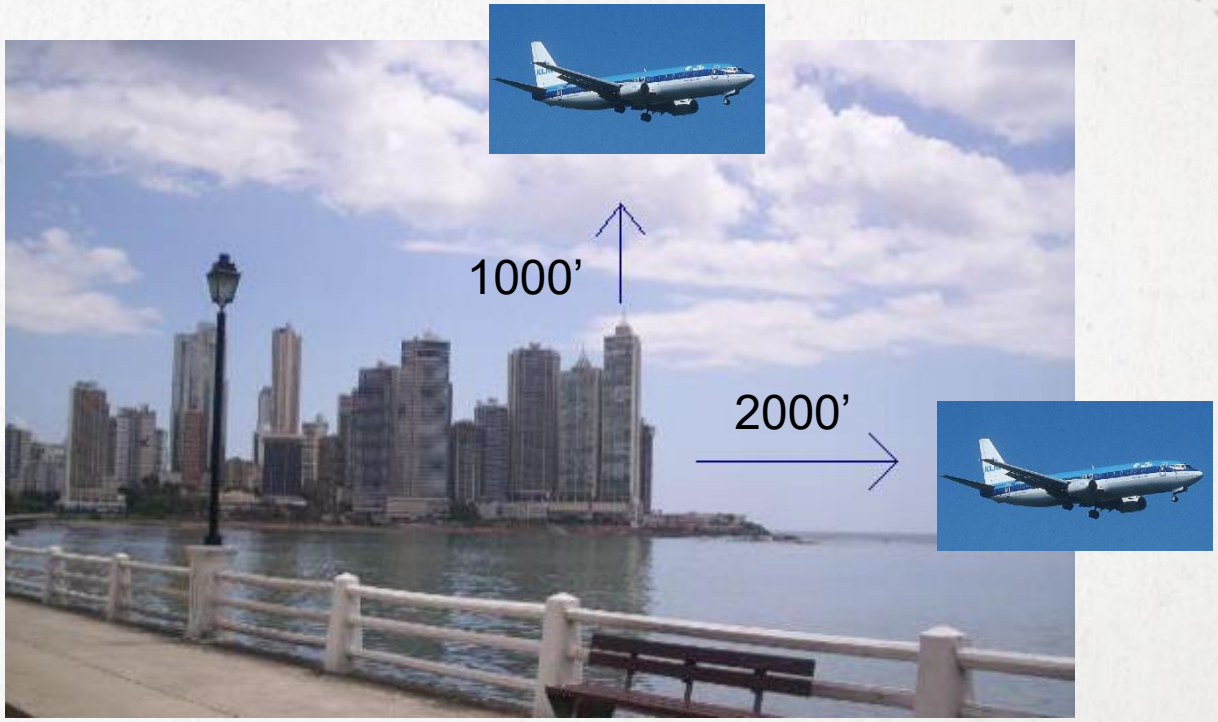
- If I haven’t flown for 7 months, what must I complete in order to remain current?

REVIEW

- 2 aircrafts are converging at and altitude of 7800 ft. Who must give right of way?

RULES OF THE AIR - 3





CAN YOU DROP I[illegible]EN FLYING?

RULES OF THE AIR - 4

- **Aerobatics flying** shall **NOT** be conducted:
  - Over any urban or populous area
  - In controlled airspace except…
- **Over-water flying** shall only be conducted when:
  - If it remains within gliding distance to land
  - Beyond 50 nautical miles, it must be equipped with life jackets for every person

FUEL REQUIREMENTS

- **Day**
  - The aircraft must have enough fuel for it's destination **PLUS 30 MINUTES**
- **Night**
  - The aircraft must have enough fuel for it's destination **PLUS 45 MINUTES**

DEFINITIONS

- **Day**
  - the beginning of morning civil twilight and the end of evening civil twilight
- **Night**
  - the end of morning civil twilight and the beginning of evening civil twilight

FLIGHT PLANS VS. ITINERARIES

FLIGHT PLAN

- Filed when flying **beyond 25 nautical miles** (VFR)
- Filed with an **ATC or FIC**
- Provides cross country route information as well as A/C specific details that would aid in search and rescue efforts
- Search and rescue notified after **1 hour** overdue

FLIGHT ITINERARY

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

AIR TRAFFIC RULES AND PROCEDURES

- Air Traffic Control **Clearance**:
  - Authorization by an ATC unit for an a/c to proceed within controlled airspace under specified conditions
  - Once accepted, it must be executed unless you make alternate arrangements

"YOU MAY"

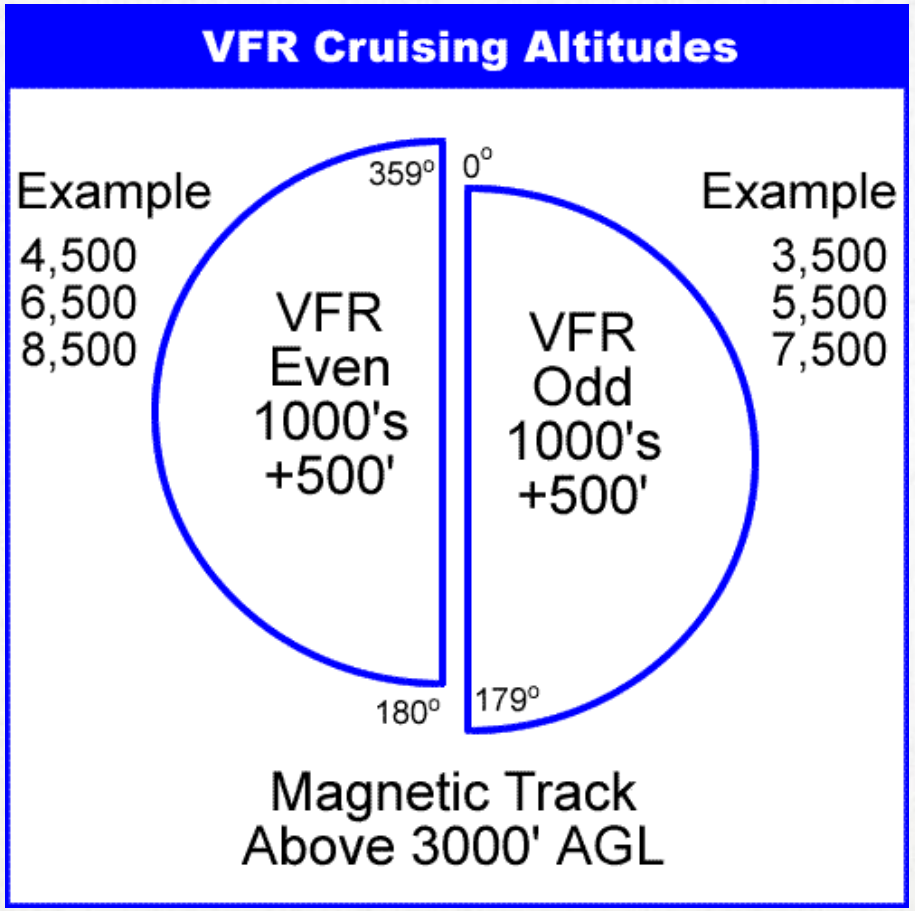
- Air Traffic Control **Instruction:**
  - A directive issued by an ATC unit for ATC purposes

"YOU MUST"

CONFIRMATION – *WUN*

- I take off at 8:30am from Toronto Pearson and land at Amsterdam Airport at 2:30am (local time). How much fuel should I take with me?
- A pilot giving an air tour to tourists from Seoul must fly how high and far from the CN tower?
- ATC: “Air Canada flight 1549, cleared to land runway 24.” What is this transmission an example of?
- When and with who is a flight plan filed with?

CRUISING ALTITUDES



WEATHER MINIMA'S

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	–

SPECIAL VFR

- When in control zones, ATC may authorize pilots to fly under weather conditions that are below VFR minima
- **Must be requested** by the pilot and given permission by ATC
- Ground and Flight visibility must **not be less than 1 mile**
- **Clear of Cloud**
- **500 feet or less** from any person, vehicle, vessel, or structure
- Must see the ground **at all times**

VFR OVER THE TOP

- Allows a pilot to conduct a flight in VFR conditions **above** the **cloud layer**

CONFIRMATION - *TOO*

- If a pilot is flying at 6500ft AGL, what is a possible heading of that aircraft?
- True or False: A pilot can fly special VFR without the clearance of ATC?
- Flight visibility in a control zone?

CLASSIFICATION OF CANADIAN AIRSPACE

- Canadian Domestic Airspace is divided into **7 classes** – A, B, C, D, E, F and G
- Flight within each region is governed by specified rules and operating procedures
- **Controlled airspace:** A-F
- **Uncontrolled airspace:** G

CLASSIFICATION OF CANADIAN AIRSPACE

Class	Height	VFR ?	IFR?	ATC Clearance?	Transponder?	Two way radio?
A	18000 ft to FL600	N	Y	Y	Y	Y
B	12000 ft to 18000 ft	Y	Y	Y	Y	Y
C	varies	Y	Y	Y	Y	Y
D	varies	Y	Y	IFR only	If marked	Y
E	varies	Y	Y	IFR only	If marked	N
F	varies	**Restricted or advisory**				
G	varies	**All uncontrolled airspace**				

CLASSIFICATION OF CANADIAN AIRSPACE

CLASS A AIRSPACE

- 18,000 feet ASL to FL600
- **IFR only**
- ATC clearance required
- ATC separation is provided to all aircraft
- All aircraft must have a **Mode C transponder**

CLASS B AIRSPACE

- 12,500’ ASL to 17,999’ ASL
- **VFR or IFR**
- ATC clearance required
- ATC separation is provided to all aircraft
- **Two-way radio**
- Radio navigation equipment
- **Mode C transponder**

CLASSIFICATION OF CANADIAN AIRSPACE

CLASS C AIRSPACE

- **IFR and VFR**
- VFR requires a clearance
- Separation is provided for IFR traffic, and VFR conflict resolution if the workload permits
- **Two way radio**
- **Mode C transponder**

CLASS D AIRSPACE

- **IFR and VFR**
- VFR traffic must make two-way communication before entering
- Separation is provided for IFR traffic, and VFR conflict resolution if the workload permits
- **Two way radio**
- If in transponder airspace, a Mode C transponder

CONFIRMATION - *TREE*

- In what class is VFR traffic prohibited?

CLASSIFICATION OF CANADIAN AIRSPACE

CLASS E AIRSPACE

- **IFR and VFR** is permitted
- Separation is provided to IFR traffic only
- If within Transponder Airspace, a Mode C transponder is required

CLASS F AIRSPACE

- **Special use airspace**
- Will be defined as "**Advisory**" [CYA] or "**Restricted**" [CYR] depending on operations
- Is subject to the rules of whatever airspace it is in (uncontrolled/controlled)
- Permanent or temporary

CONFIRMATION – *FOW-ER*

- What class of airspace requires a two way radio and requires IFR traffic to get ATC clearance?

CLASS F AIRSPACE

ADVISORY AIRSPACE

- Areas where non-participating aircraft **should be aware** of operations
- Pilots are allowed to enter at their own discretion
- Activities include:
  - Training
  - Parachuting
  - Hang gliding
  - Military operations

RESTRICTED AIRSPACE

- **No person** may conduct aerial operations in restricted airspace **unless permission has been given**

CLASSIFICATION OF CANADIAN AIRSPACE

Class	Height	VFR ?	IFR?	ATC Clearance?	Transponder?	Two way radio?
A	18000 ft to FL600	N	Y	Y	Y	Y
B	12000 ft to 18000 ft	Y	Y	Y	Y	Y
C	varies	Y	Y	Y	Y	Y
D	varies	Y	Y	IFR only	If marked	Y
E	varies	Y	Y	IFR only	If marked	N
F	varies	**Restricted or advisory**				
G	varies	**All uncontrolled airspace**				

CONFIRMATION – *FIFE*

1. Unless otherwise authorized, a pilot on a VFR flight entering Class C airspace must:

a) request a clearance from the appropriate ATC unit immediately after entering.

b) establish radio contact with the appropriate ATC unit only when transiting the associated control zone.

c) receive a clearance from the appropriate ATC unit prior to entering

d) contact radar service only when taking off or landing at the associated airport

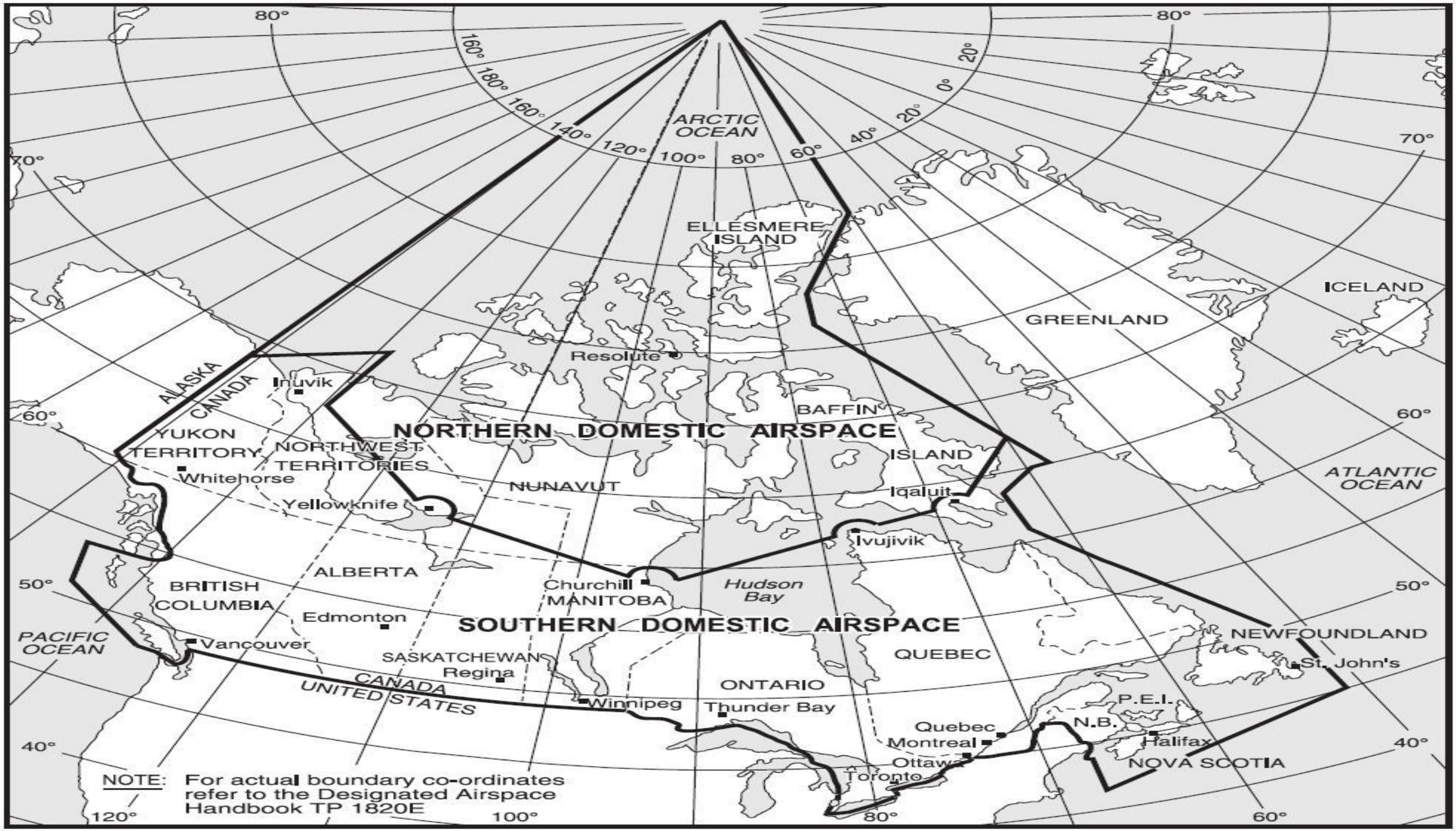
DOMESTIC AIRSPACE

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

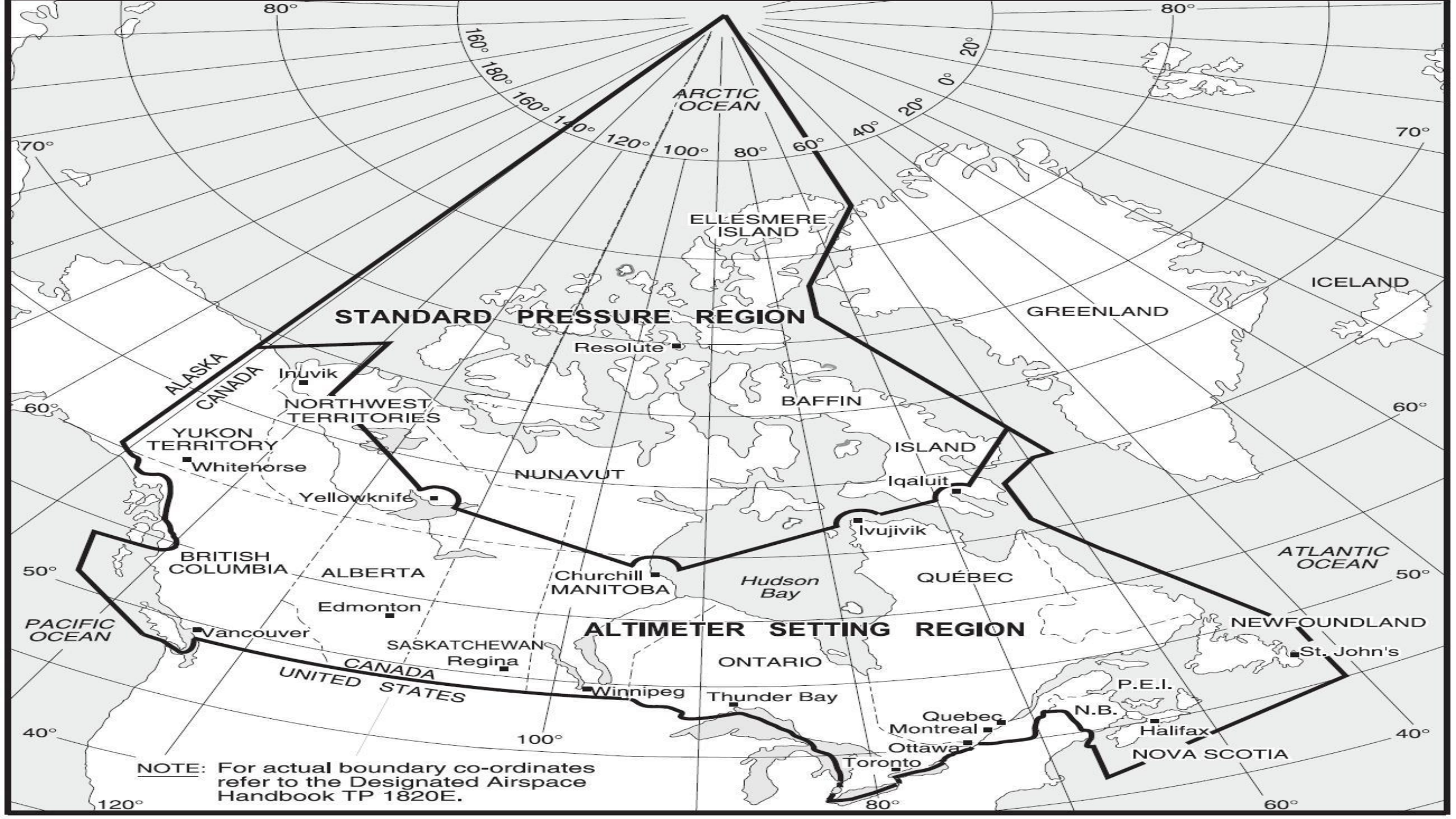
- All aircraft operating in this area must fly at an altitude that is appropriate for their direction of flight as determined by **MAGNETIC** track calculations
- Runway numbering and surface wind are reported in degrees **MAGNETIC**


ARCTIC OCEAN
ELLESMERE ISLAND
ICELAND
GREENLAND
Resolute
ALASKA
CANADA
Inuvik
BAFFIN ISLAND
NORTHERN DOMESTIC AIRSPACE
YUKON TERRITORY
NORTHWEST TERRITORIES
Whitehorse
Yellowknife
NUNAVUT
Iqaluit
ATLANTIC OCEAN
Ivujivik
ALBERTA
BRITISH COLUMBIA
Churchill
MANITOBA
Hudson Bay
Edmonton
SOUTHERN DOMESTIC AIRSPACE
PACIFIC OCEAN
Vancouver
SASKATCHEWAN
Regina
QUEBEC
NEWFOUNDLAND
St. John's
CANADA
UNITED STATES
ONTARIO
Winnipeg
Thunder Bay
P.E.I.
N.B.
Quebec
Montreal
Halifax
Ottawa
Toronto
NOVA SCOTIA
NOTE: For actual boundary co-ordinates refer to the Designated Airspace Handbook TP 1820E


6 3 N 33
For N 30 60 E 120 150
Steer -1 +1 0 -1 +1 -1
For S 210 240 W 300 330
Steer -1 +1 -1 W -1 +1
AIRPATH

ALTIMETER REGIONS

1. **Altimeter Setting Region** (up to 17,999 feet)
   a) **Take-off, cruise, & landing:** current of nearest altimeter setting of airport (or elevation setting)
2. **Standard Pressure Region** (altitudes higher than 18,000 feet)
   - **Take-off & landing:** current altimeter setting of airport (or elevation setting)
   - **Cruising:** set to the Standard Pressure (29.92” Hg)



NOTE: For actual boundary co-ordinates refer to the Designated Airspace Handbook TP 1820E.


100
FEET
CALIBRATED
TO
20,000 FEET
29.8
29.9
30.0

CONFIRMATION – *SIX*

- If a runway is numbered 06 in Quebec, is that in degrees magnetic or true?
- What is the altimeter set to in the standard pressure region while cruising at 25 000 ft?

UNCONTROLLED VS. CONTROLLED

- **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

DEFINITIONS: AERODROMES

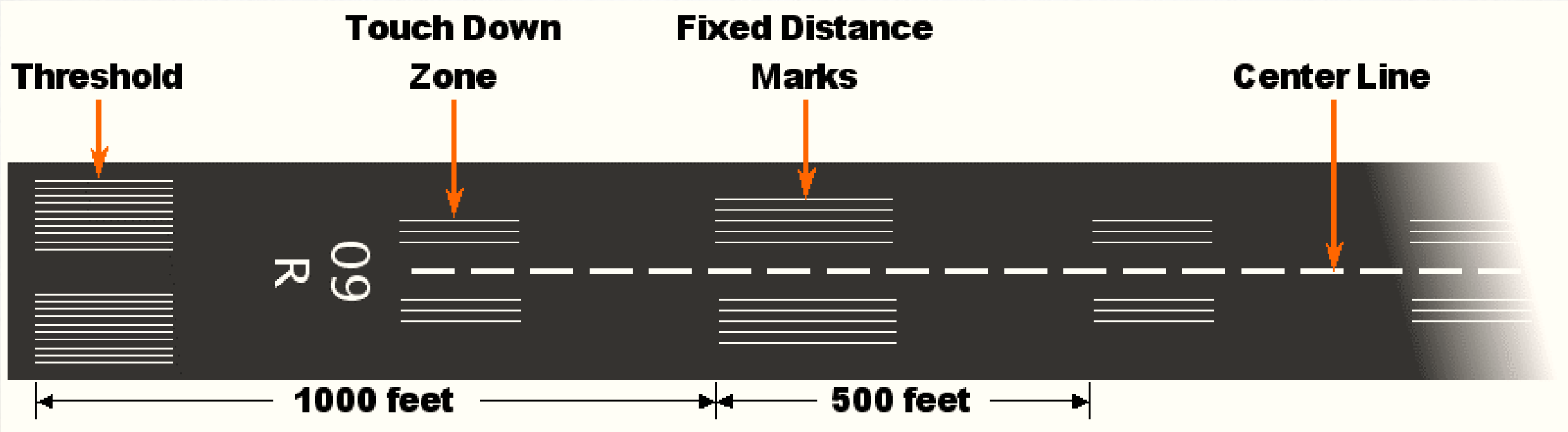
- **Aerodrome**
  - **Any area of land or water** designed for the arrival, departure, movement and servicing of aircraft.
  - Classified as: certified for public use, certified for private use, registered, military
- **Airport**
  - **Any aerodrome that has a certificate** that testifies that the airport meets airport certification safety standards. Ex. Pearson Airport (International)

AERODROMES

- **MANEUVERING AREA**
  - Part of the airport for **taking off** and **landing** of aircraft, and the **movement** of aircraft
    - For example: Runways and Taxiways
- **APRON**
  - Area intended for loading and **unloading** of passengers and cargo, the **refuelling**, **servicing**, **maintenance** and **parking** of aircraft and the movement of aircraft, vehicles and pedestrians
    - For example: terminal, hangar, etc.

RUNWAY NUMBERING & MARKING

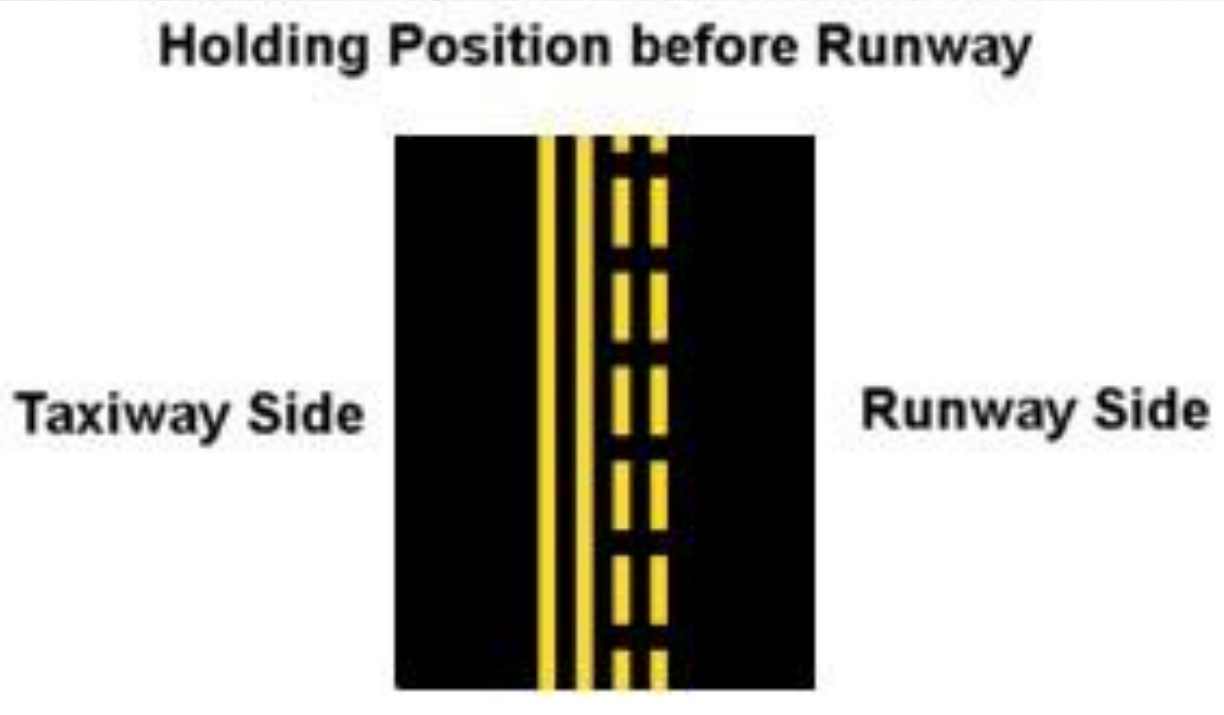
- The number on runway is displayed with two digits, rounded to the nearest 10 degrees. **Ex. 090 degrees instead of 09 degrees**

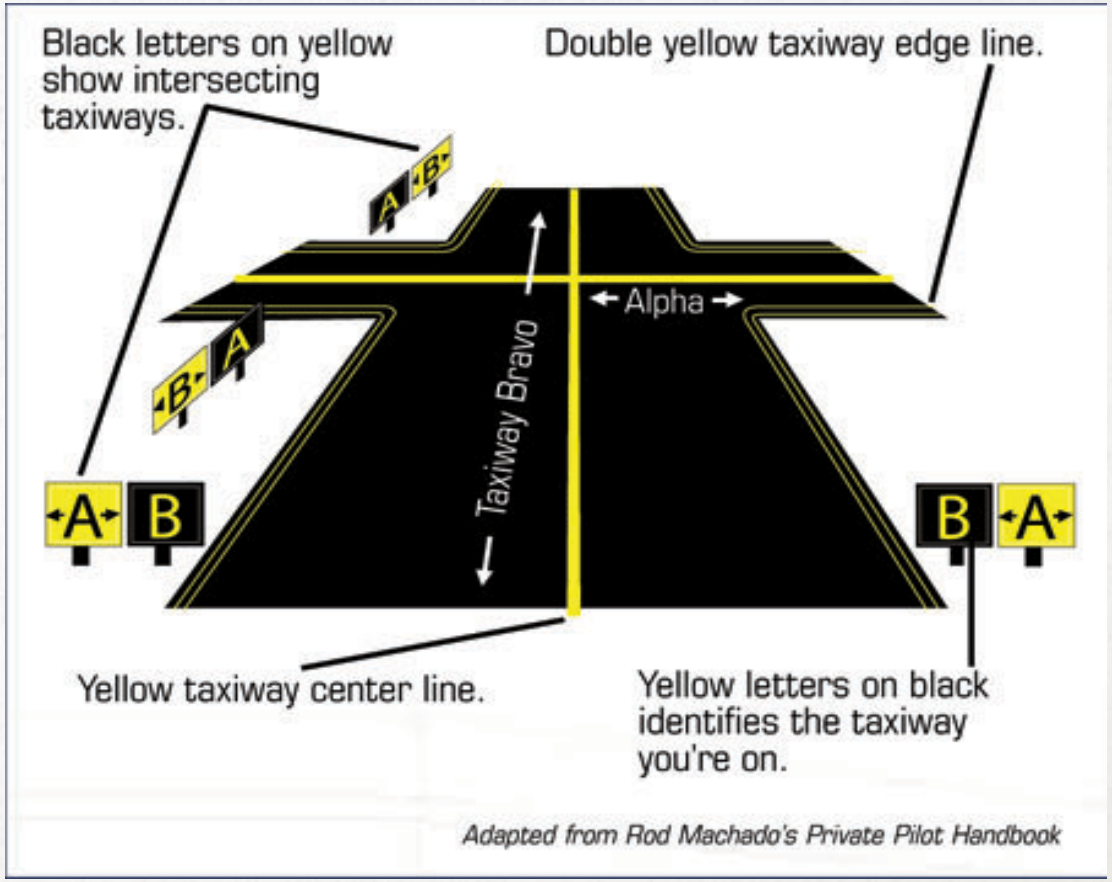


CONFIRMATION – *SEVEN*

- Define an airport and give an example.
- How far apart are touch down zone markings and fixed distance markings?

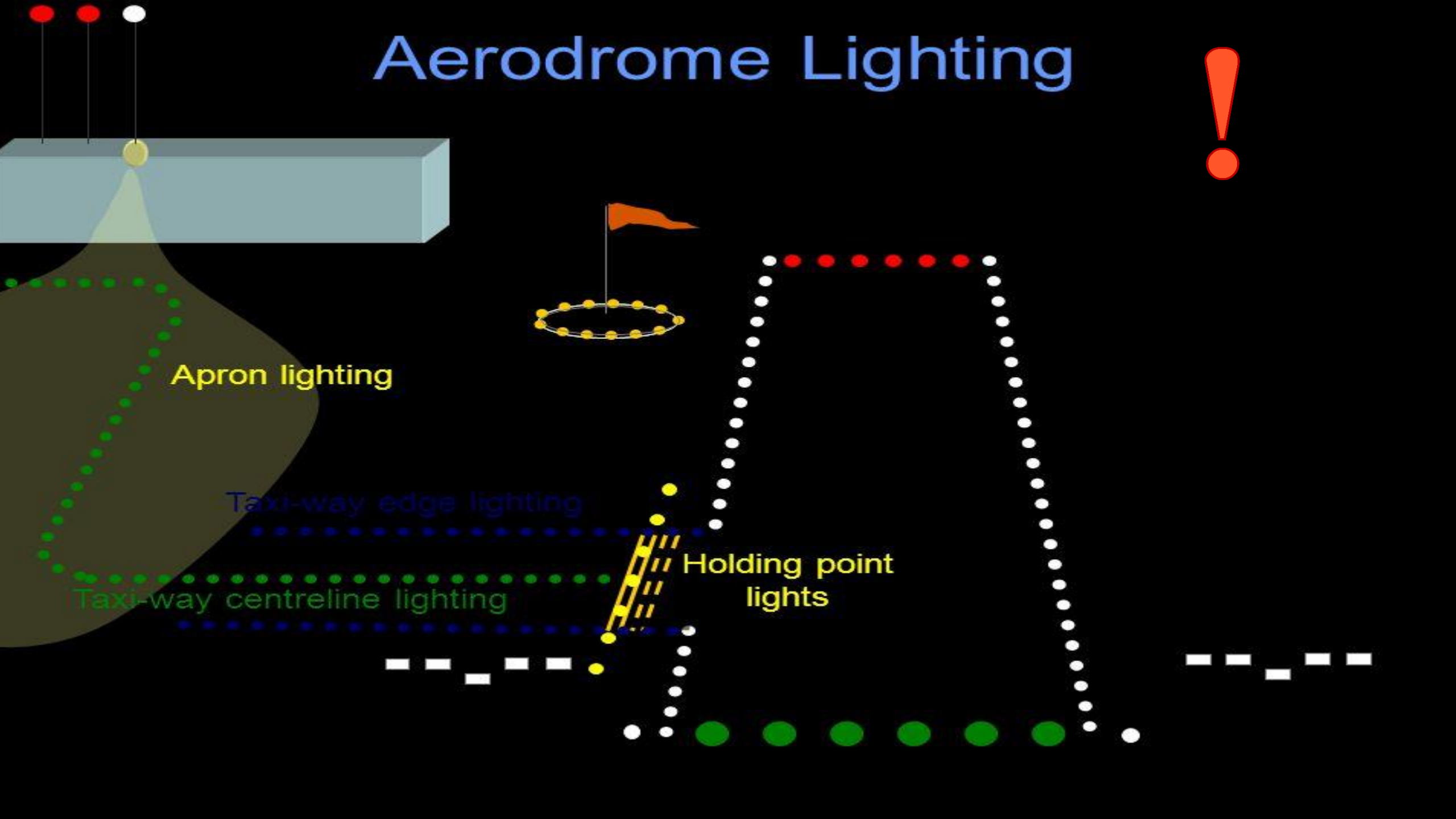
TAXIWAY MARKINGS





TAXIWAY SIGNS

Aerodrome Lighting

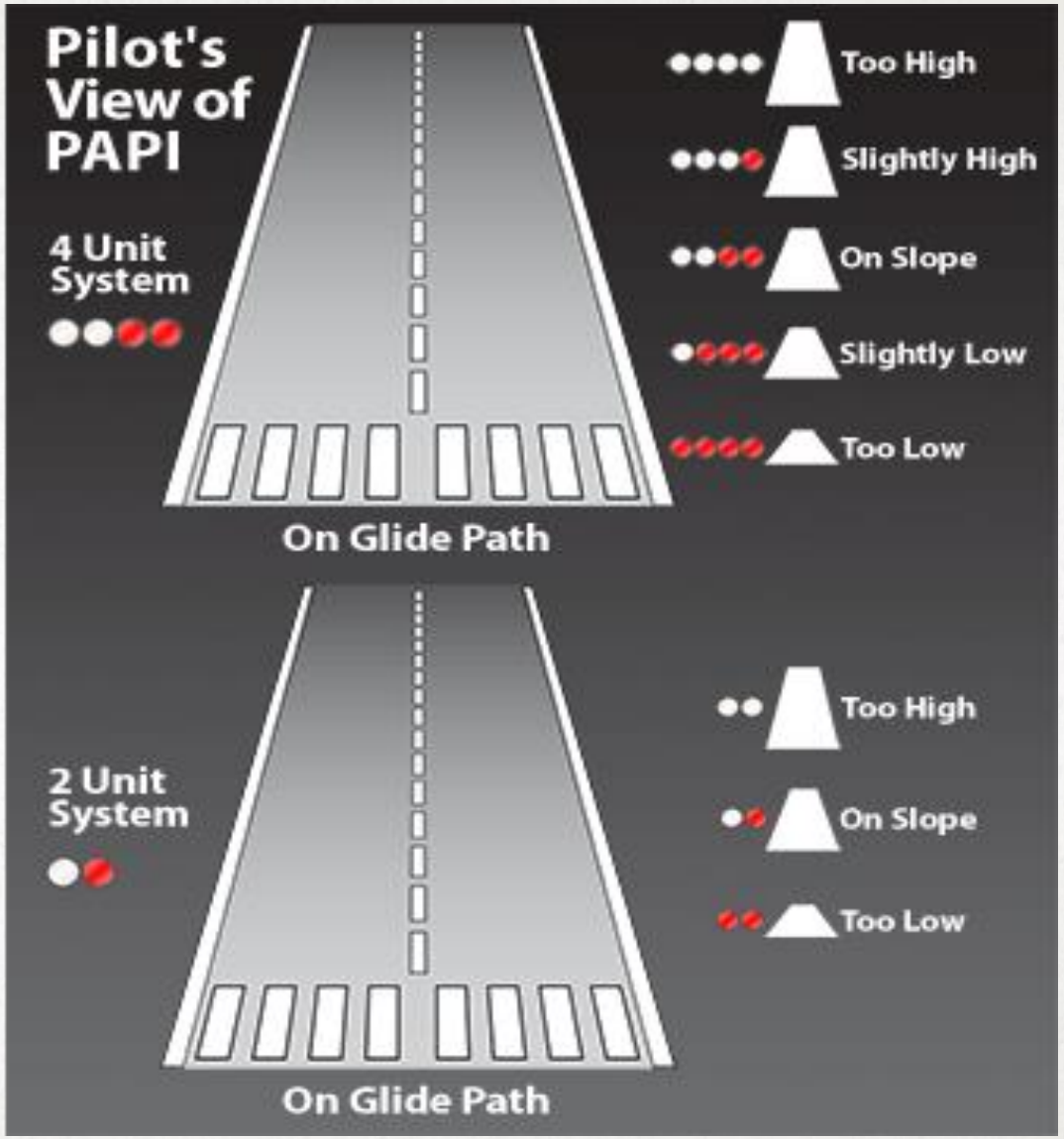


WIND SOCK

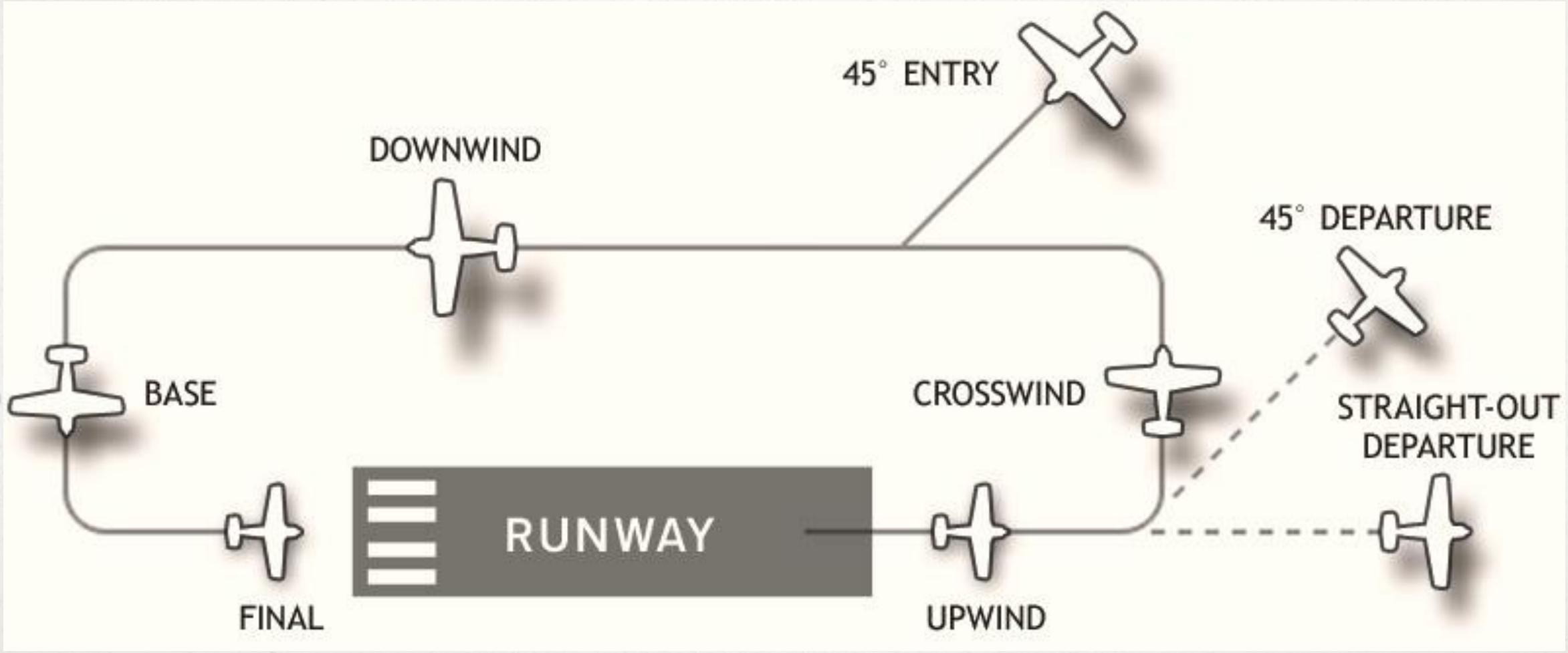
- The **velocity** of the wind can be determined by the amount of extension by the wind sock.
- When flown directly **horizontal**, the wind is at **15 knots or more**
- When flown 30 degrees below the horizontal, the wind is at 6 knots.

HELIPAD

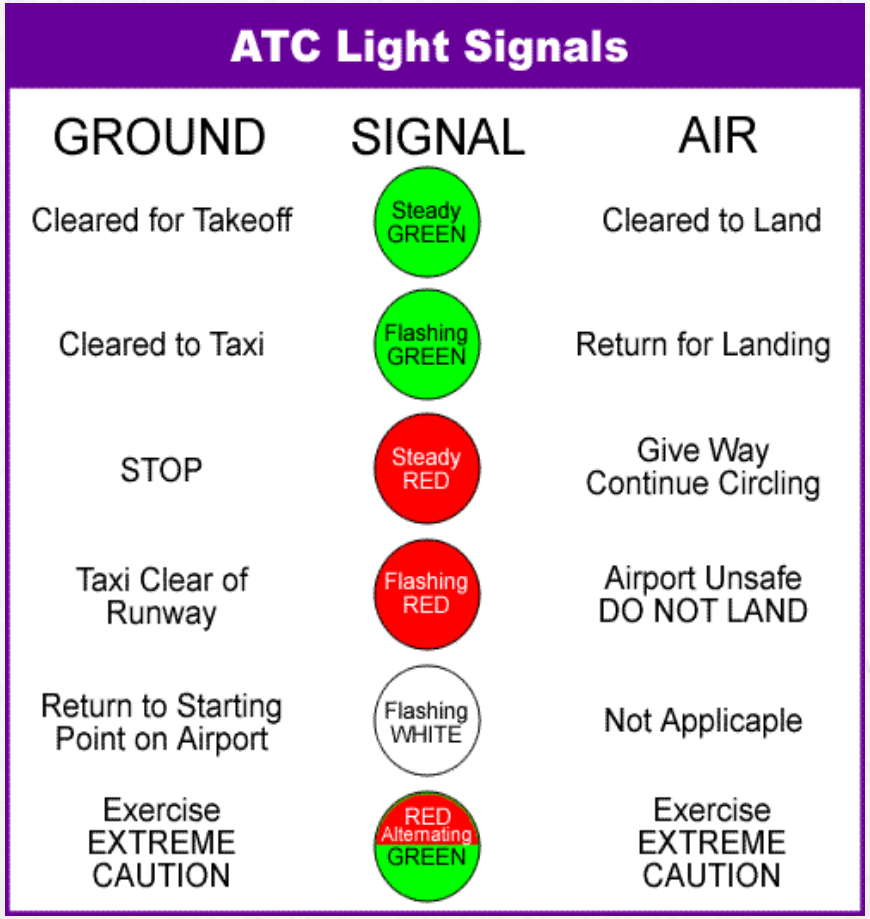
APPROACH LIGHTS



CIRCUIT PROCEDURE



NORDO (NO RADIO) SIGNALS



NEXT WEEK…

- Finished section 2 of 4! (Woohoo!)
- Test next week will cover everything you learned from both classes
  - Approximately 40 questions
- Make sure to practice quiz 2 on the website
  - If you have any questions, use the contact us section of the website
- Next section will be **Meteorology**
- Good Luck!