

Edmonton Flying Club PA44 Seminole Open Book Exam

Name: _____

1. General/Practical Application

Pre-flight Inspection
Location & number of fuel drains _____
Purpose of checking fuel _____
Tightness of oil dipstick(s) _____
Tire pressure(s) _____
Location of VHF radio antenna _____
Location of OAT Sensor _____

If co-pilot experiences brake failure, what happens to pilot's braking ability?

How is the mixture regulated by the pilot to achieve the best fuel to air ratio?

When inbound to CPL6 from north of the field, when must you make radio contact with aerodrome traffic?

When signing out an aircraft for a flight to CER3 and back you notice that the aircraft is scheduled for its 50-hour inspection the next day and has already been signed off for the additional 10 hours. The journey log shows that you have 1.5 hours remaining from the extended number. Can you take the aircraft flying? Should you fly your intended route?

2. Limitations

2.1. List the following airspeeds and definition of each:

| | |
|-------------------|------------------|
| V _{NE} | V _{LE} |
| V _{NO} | V _{LO} |
| V _{O(A)} | V _{MCA} |
| V _{FE} | V _{YSE} |
| V _S | V _{XSE} |
| V _{S0} | V _{SSE} |
| V _R | |
| V _X | |
| V _Y | |

2.2. List the following weights:

- a. Basic empty weight _____
- b. Maximum takeoff weight _____
- c. Useful load _____
- d. Maximum baggage weight _____
- e. Maximum zero fuel weight _____

2.3. What is the appropriate fuel grade and colour?

2.4. What is the minimum and maximum oil quantity for this aircraft and what type do we use? What is EFC's Minimum?

2.5. Center of Gravity Range

- a. Forward _____
- b. Rear _____

2.6. Electrical System

What is the Battery Voltage(s)?

How do the alternator(s) operate?

2.7. What is the Maximum demonstrated x-wind component for this aircraft? What is your personal limit?

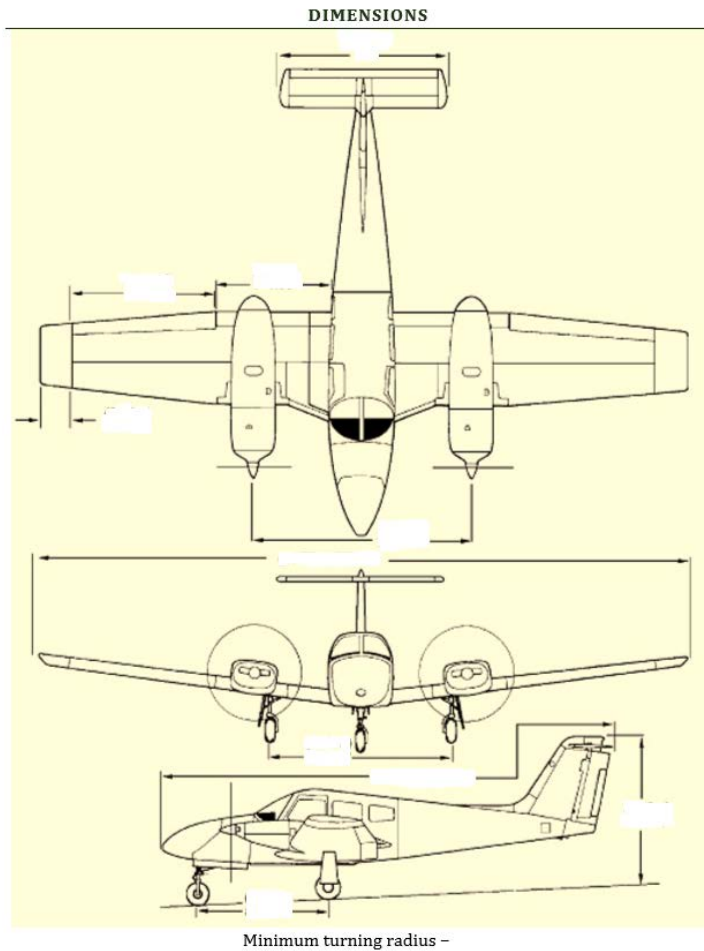
2.8. If you are departing runway 26 and the winds are reported on the METAR as 20020KT are you within the demonstrated limits of this aircraft?

2.9. Explain what is meant by V_{LO} and how it applies to how you operate the gear? How is it different from V_{LE} ?

2.10. How does V_{FE} apply to this aircraft? Are there different speeds for lowering and retracting? Are there different speeds for various flap settings?

2.11. What would occur on the G1000 as you approach 111kts with the flaps extended? What if you go over 111kts? How would you proceed in the air? Once back at the airport?

2.12. Fill in the missing dimensions.



3. Aircraft Performance

Calculate fuel flow and TAS

Altitude 4000ASL

Altimeter 29.30 " Hg

2400 RPM

Temp +11C

GPH _____(x2)

TAS _____

Calculate the Take-off Distance over a 50FT Obstacle, Short Field Effort

Temp 20C

Pressure alt. 4000ft

Weight 3200lbs

Wind 030 at 10T

Runway 08, hard surface

Take off distance to clear a 50 ft Obstacle _____

Calculate the Climb Performance, One Engine Operating, Gear Up
 Temp 30C
 Pressure Altitude 2000FT
 Wind 010 at 20T
 Weight 300LBS
 Rate of Climb- Feet/Minute _____

Complete the following Weight and Balance

| Item | Weight | Arm | Moment |
|---------------------------|---------|------|--------|
| Aircraft | 2660LBS | 86.8 | |
| Pilot & Front Passenger | 395LBS | | |
| Rear Passenger | 165LBS | | |
| Baggage | 80LBS | | |
| Fuel (35gallons per tank) | | | |
| Total | | | |

What is the location of the Center of Gravity? _____

Are we within the limits of this aircraft? If not, what could be done?

What weight, at takeoff, will provide at 200 fpm single-engine climb? Assume OAT +20°C and a Pressure Altitude of 4000 feet. _____

What will be the Single-Engine Service Ceiling based on the above conditions?

Calculate the Accelerate Stop Distance under the conditions:

Temp -20C
 Pressure alt. 2500ft
 Weight 3400 lbs
 Wind 070 at 20T
 Runway 08, hard surface
 Total Accelerate Stop Distance _____

Calculate the Landing Distance to Clear a 50FT Obstacle under the conditions:

Temp 20C
 Pressure alt. 4000ft
 Weight 3200lbs
 Wind 060 at 20T
 Runway 08, hard surface
 Total landing distance _____
 Emergency Procedures

In the event the aircraft gets below the V_{MCA} speed what is the correct recovery procedure?

You have been cleared into CZVL airspace and cleared to join the left base for runway 16 from the Big Lake area. As you get closer in, you notice that no radio calls have gone through since your last call. Prior to descending to circuit altitude, you notice another aircraft that appears to be joining the left downwind runway 16 and is within 2 miles of you at the same altitude. You make a radio call and turn onto a wide left base. There is no response. What do you do?

Just after leveling off you notice that your oil temperature gauge is no longer indicating any pressure, but your oil pressure appears to be fine and the engine is running smoothly. The temperature is +10C, dew point +08C, and the aircraft just came back from its 100-hour inspection. What could be wrong with the aircraft and how would you handle the situation?

The aircraft has just come back from its routine 50-hour inspection and you are taking it up for an IFR training flight. As you attempt to start the aircraft the engine backfires a few times and will not turn over. You let the starter cool down for 30 seconds and decide to try one more time. As you turn the key you notice smoke coming from the cowling. How do you handle the situation?

Under what flight conditions is V_{MCA} calculated?

What is meant by a critical engine? Does the PA44 have one? Why or why not?

Under what flight conditions/characteristics would V_{MCA} be at its lowest (best case scenario for the lowest V_{MCA} possible?)

4. Emergencies and System Failures (G1000)

If any single display fails, which mode does the system automatically change to?

What is an AHRS failure and how would you know it has occurred?

What information is lost during an AHRS failure?

In the event of an AHRS and/or ADC failure, what action should be taken?

What information is presented to the pilot when the system is in revisionary mode?

In the event of an alternator failure, how are the electrical systems affected?

During startup after turning the standby battery on, you notice some red X's on an engine gauge. How do you proceed?

What is the GMU magnetometer? What is affected if this fails?
