

Edmonton Flying Club Cessna 172S Open Book Exam

The open book exam expires in two years unless significant changes occur.

Member Name _____

Member Number _____

Date (YYYYMMDD) _____

Contents

1. Limitations	2
1.1. General Rules and Regulations.....	2
1.2. Airspeeds (IAS)	2
1.3. Weights	2
2. Aircraft Systems	3
3. Pre-Flight Planning	4
3.1. Frequencies.....	4
3.2. Airspace	4
4. Edmonton Flying Club Operating Procedures.....	5
5. Aeroplane Performance.....	6
6. Abnormal Scenarios.....	7
7. Emergencies and System Failures (172SG/G1000).....	8
8. Defect Control Procedure Questions.....	9
9. Aircraft Servicing	11
10. Defect Control Procedure Reference.....	13
11. Completion Checklist	17

1. Limitations

1.1. General Rules and Regulations

I have read and understand all the Edmonton Flying Club General Rules and Regulations which are available on the website and posted at dispatch. I understand that failure to follow the general rules and regulations will result in the suspension of flying privileges. Abuse or negligence causing damage to the aircraft such as slamming the doors may also result in the suspension of flying privileges.

Signed _____

1.2. Airspeeds (IAS)

- 1.2.1. Never exceed speed (V_{NE}) _____
- 1.2.2. Maximum structural cruise speed (V_{NO}) _____
- 1.2.3. Maneuvering speed (V_A) _____
- 1.2.4. Flap extension speed (V_{FE}) _____
- 1.2.5. Stall speed cruise (V_{S1}) _____
- 1.2.6. Stall speed in landing configuration (V_{S0}) _____
- 1.2.7. Best glide speed (V_{GLIDE}) _____
- 1.2.8. Best angle of climb (V_X) _____
- 1.2.9. Best rate of climb (V_Y) _____

1.3. Weights

- 1.3.1. Maximum takeoff weight _____
- 1.3.2. Useful load _____
- 1.3.3. Maximum baggage weight (combined) _____
- 1.3.4. Maximum fuel weight possible _____

1.4. What is the center of gravity range in the normal category?

- a) forward 35.0 inches at 1950 to 37.5 inches at 2200 and 40.5 inches aft
- b) forward 35.0 inches at 1950 to 41.0 inches at 2550 and 47.3 inches aft
- c) forward 35.0 inches at 1950 to 41.0 inches at 2550 and 40.5 inches aft

2. Aircraft Systems

2.1. What is the total fuel, unusable and fuel type used?

- a) 53USG with 3USG unusable, 100LL or 100
- b) 56USG with 3USG unusable, 100LL or 100
- c) 53USG with 3USG unusable, 100LL only
- c) 53USG with 1.5 unusable, 100LL or 100

2.2. There are

- a) 11 fuel drains
- b) 13 fuel drains
- c) 3 fuel drains
- d) 7 fuel drains

2.3. The fuel should be checked

- a) before the first flight
- b) before the first flight and after fuel is added
- c) before switching fuel tanks
- d) on the left wing when the fuel selector is on left and on the right wing when the fuel selector is on right

2.4. What color is the hydraulic fluid is used in the nose gear oleo and braking system?

2.5. How do you operate the mixture to achieve RECOMMENDED LEAN?

2.6. What are the symptoms of a mixture setting that is too lean?

2.7. What is the battery voltage and how is it charged?

3. Pre-Flight Planning

3.1. Frequencies

- 3.1.1. CPL6 _____
- 3.1.2. CZVL GND _____
- 3.1.3. CZVL TWR _____
- 3.1.4. CFB6 _____
- 3.1.5. CEX3 _____
- 3.1.6. CYA209 _____
- 3.1.7. Enroute _____
- 3.1.8. Edmonton Terminal _____

3.2. Airspace

3.2.1. What is the minimum altitude ASL that can be flown when in transit over Beach Corner (see Edmonton VTA)?

3.2.2. The CPL6 (Parkland) MF has a radius of _____ miles.

3.2.3. Before entering the Edmonton TCA either a flight plan or a _____ is required and can be obtained from _____ by phoning _____.

4. Edmonton Flying Club Operating Procedures

- 4.1. When checking the oil, the dipstick is tightened
 - a) as tight as possible
 - b) finger tight
 - c) loose so it can be removed easily
 - d) finger tight plus one half turn

- 4.2. Any cross country flight four(4) hours or less must carry a full survival kit and
 - a) a cross country route form, complete and correct be provided to dispatch
 - b) verbally tell dispatch where you are going
 - c) ensure the route on the dispatch sheet includes the full route flown
 - d) email the CFI and inform them where you are going

- 4.3. The winter baffles must be removed when the OAT is greater than M07. What is required before you remove (or install) winter baffles?
 - a) you must receive training from an AME
 - b) no training is required
 - c) you must receive training from an instructor, dispatcher or AME
 - d) you must receive training from a person who has already been trained

- 4.4. Unless during taking off or landing at an aerodrome the aircraft shall be operated at no less than
 - a) 1000ASL
 - b) 1000AGL
 - c) 500AGL
 - d) per the CARs and varies if over a built up or non-built up area

- 4.5. Flight reservations include time for post flight duties. For a flight reservation of two(2) hours starting at 08:00, the aircraft shall have landed, be shutdown and available for the next reservation at or before
 - a) 10:00
 - b) 09:30
 - c) 09:45
 - d) 09:50

- 4.6. Upon landing at CPL6 unless otherwise directed by a staff member the aircraft shall be parked
 - a) at the fuel pump
 - b) in front of the hangar
 - c) where you picked it up from
 - d) on the south side of the apron behind the yellow line

5. Aeroplane Performance

- 5.1. The maximum demonstrated crosswind component is
- a) 15KTS
 - b) 20KTS
 - c) changes based on flap configuration used
 - d) 17KTS
- 5.2. If departing CPL6 runway 26 with winds reported on the METAR as 23015KT, the headwind and crosswind components are _____
- 5.3. Calculate the fuel flow and true airspeed for the following conditions:
Indicated Altitude, 4500ASL, Temperature 06, Altimeter 29.42, 2400RPM
TAS _____ GPH _____
- 5.4. Calculate the Landing Distance to clear a 50ft obstacle for the following conditions:
Airfield Elevation 2500, Temperature 20, Altimeter 29.42, Aircraft Weight 2100
Wind 315(T) 09KTS, Runway 30, Hard, Paved, Level, Dry

- 5.5. For an aircraft with a basic empty weight of 1722LBS and moment of 68815, yourself, a 300LB passenger in the front seat, full fuel and 40LBS in baggage area A:
- 5.5.1. Determine the takeoff weight and center of gravity _____
 - 5.5.2. Is the aircraft within weight and balance limitations? _____
 - 5.5.3. State any adjustments required to the loading of the aircraft

- 5.6. When returning to CPL6, unless otherwise communicating with another air traffic service unit, when must you make your initial radio call and what information does it contain?

- 5.7. When backtracking CPL6 RW26 with winds of 31510KT, the control column is positioned:
- a) forward and right
 - b) forward and left
 - c) neutral and right
 - d) neutral and left

6. Abnormal Scenarios

6.1. During a cross country from CPL6 to CYQF, shortly after you have been cleared enroute frequencies you notice a strange smell in the cabin and it appears that there is some smoke coming from in front of you. What actions do you take?

6.2. You depart CPL6 for a flight to CZVL for circuits. You attempt to make contact with CZVL TWR west of Spruce Grove but receive no response. What actions do you take?

6.3. You are taking a friend for their first flight after being cancelled 3 times due to weather. You taxi for to do the run up prior to departure. During your run up, you test the magnetos and the left mag shows a drop of 175 RPM and runs rough. You try the right mag and the engine loses 70 RPM and operates as expected. Your passenger really wants to go and is pushing to get airborne because he is getting hot. What do you do?

6.4. After levelling you notice that the oil temperature gauge is no longer indicating, but the oil pressure appears to be within normal operating ranges and the engine is running smoothly. The temperature is +12C, dew point +10C. What could be wrong with the aircraft and what actions are appropriate?

6.5. Attempting 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. You...

7. Emergencies and System Failures (172SG/G1000)

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

- a) display mirror mode
- b) revisionary mode
- c) display backup mode
- d) display failure mode

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

7.3. What information is lost during an AHRS failure?

- a) airspeed, altimeter and vertical speed indication
- b) heading, attitude and turn coordinator indication
- c) heading, altitude and airspeed indication
- d) airspeed and altimeter indication

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

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

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

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

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

8. Defect Control Procedure Questions

8.1. You discover that the aircraft has an inoperative light during your pre-flight.

- A. Go flying and worry about it when you return.
- B. Ignore the defect since you are only flying DAY VFR.
- C. Ensure that the defect is entered in the journey log before your flight along with your signature and license number. The defect will then have to be either rectified or deferred.
- D. Contact EFC maintenance and ask them to repair the inoperative light.

8.2. You have been flying an EFC aircraft at night. During your flight you had to inform ATC of any altitude changes and they asked you to verify your altitude several times. You landed at CPL6 after hours and there were no EFC personnel on site.

- A. Enter the defect in the aircraft journey logbook along with your signature and license number.
- B. Go home and get to bed because you have to work early tomorrow.
- C. Go to the bar and tell all of your friends what a good pilot you are.
- D. Email the Chief Flight Instructor (CFI) and let that person know about the defective transponder. Request an email "read receipt" so that you know your email has been read.

8.3. Canadian Aviation Regulation (CAR) 605 references General Operations and Flight Rules-Aircraft Requirements.

True or False?

8.4. You notice that the tachometer has exceeded the red line (overspeed). You immediately reduce power but you are not sure how long it had exceeded the red line. What should you do?

- a. Continue your flight as this happens all of the time, especially with training aircraft.
- b. Return to base and document the overspeed in the aircraft journey logbook. Include an estimate of the maximum RPM and duration.
- c. Text EFC maintenance from the air and ask their advice.
- d. Nothing, pretend that it did not happen. You do not want to be responsible for a potential >\$20,000 engine repair.

8.5. Reviewing the aircraft journey logbook prior to your DAY VFR flight you notice that the landing light is written up as "inop" but you do not see this item listed on the *Deferred Defect Sheet*. What should you do?

- a. Nothing as the landing light is not required for DAY VFR, everybody knows that.
- b. Enter the landing light deferral in the aircraft journey logbook with your license number.
- c. Enter the landing light deferral on the *Deferred Defect Sheet*.
- d. Contact an authorized person at EFC and ask them for authority to defer the defect. If deferral authorization is granted then record the deferral in the journey log, enter it on the *Deferred Defect Sheet*, placard the switch and deactivate the system.

8.6. Which of the following statements are true?

- 1) your passenger who discovered a defect enters the defect into the journey log
- 2) you as the PIC discovered a defect, enter the defect into the journey log before the next flight with your signature and license number
- 3) a dispatcher enters the defect into the journey log after you notify them of a defect on an aircraft that you were not flying
- 4) maintenance will take care of the recording and rectification of any defects

9. Aircraft Servicing

Servicing- CAR 406.44

A flight training unit that operates an aeroplane ... shall ensure that each person who performs or requests the performance of servicing has satisfactorily completed training, under a training program required by section 406.45, for the servicing to be performed.

Training Program-CAR 406.45

A flight training unit that operates an aeroplane ... shall implement a training program to ensure that persons who are authorized to perform a function under this Division are trained in respect of the regulations, standards and flight training unit procedures applicable to that function, as specified in the personnel licensing standards.

Training Program-STD 426.45

(1) The training program required by section 406.45 of the CARs shall ensure that personnel trained are familiar with the regulations, standards, flight training unit procedures and human factors issues related to the work for which they are responsible.

(2) The training program shall include: (a) initial training to ensure that persons performing elementary work or servicing are aware of the pertinent regulations, standards and flight training unit procedures associated with that work;

(3) Human factors training shall include instruction in:

(a) human performance;

(b) factors influencing human error including:

(i) fatigue;

(ii) stress;

(iii) assertiveness;

(iv) awareness;

(v) resources;

(vi) knowledge;

(vii) teamwork;

(viii) norms (commonly accepted standards and procedures);

(ix) complacency;

(x) pressure;

(xi) distraction; and

(xii) communication;

(c) error management, including error prevention and error containment.

EFC Servicing Procedures

Fuel

- Fueling at CPL6 is normally completed by EFC staff. Protective mats are used to prevent damage to the wing.
- If fuel is required away from base then you must be familiar with the aircraft fueling procedures including but not limited to: fuel quantity and type, attitude, grounding, static grounding, fuel cap security, fuel selector valve position, contamination precautions, availability of fire-fighting equipment, proper clothing, cell phone or other transmitting device usage and any local rules and regulations.
- Fuel purchased away from CPL6 is reimbursed at the EFC CPL6 rate.

Oil

- Do not mix brands of oil, the EFC normally uses Aeroshell W15W-50. During break in of new engines or replacement cylinders a single grade Mineral oil is used.
- Avoid contamination and spillage. Do not over fill.
- Oil level is recorded in the journey log for each flight. Any time oil is added the quantity and type must be recorded by the person who added the oil.

Hydraulic Fluid

- The Brake system and the nose gear shock strut are both serviced with Mil-H-5606 hydraulic fluid.
- Servicing of the nose gear strut and brake system is normally completed by EFC maintenance staff only. If these items require servicing then EFC maintenance must be contacted.

Shop Air or Nitrogen

- The EFC normally services all tires with shop air.
Nose gear shock struts are normally serviced with Nitrogen to reduce moisture contamination.
1. To ensure maximum capacity, what position should the fuel selector be in what position when adding fuel?

 2. Name one human factor that could result in a refueling error.

 3. Renter and solo pilots are authorized to add air to an aircraft tire.
a) true
b) false

10. Defect Control Procedure Reference

Some equipment is supplemental with no operational or regulatory requirement. Examples could include the EGT system, CHT system, Tanis heat system and passenger convenience items such as interior cabin light.

Other equipment can never be deferred. Examples could include a rough running engine, airspeed indicators, tire cord showing, if a seat belt/shoulder harness broken, engine oil leaks, fuel leaks or the G1000 *Cockpit Reference Guide* is missing.

There is a *Defect Deferral Sheet* in the front of each journey log. This sheet includes guidance provisions to properly defer a defect.

Excerpts from the Canadian Aviation Regulations and the EFC MCM

Canadian Aviation Regulation: Defect Recording, Rectification and Control Procedures

406.41 A flight training unit that operates an aeroplane shall establish and comply with policies and procedures that meet the personnel licensing standards for

- (a) recording aircraft defects, including defects that are detected during aircraft operation or during the performance of elementary work or servicing;
- (c) ensuring that defects are rectified in accordance with the requirements of these Regulations; and

Canadian Aviation Regulation: Unserviceable and Removed Equipment — Aircraft without a Minimum Equipment List

605.10 (1) no person shall conduct a take-off in the aircraft with equipment that is not serviceable or that has been removed, where that equipment is required by

- (a) the standards of airworthiness that apply to day or night VFR or IFR flight, as applicable;
- (b) any equipment list published by the aircraft manufacturer respecting aircraft equipment that is required for the intended flight;
- (c) or a flight training unit operating certificate;
- (d) an airworthiness directive; or
- (e) these Regulations.

(2) Where the aircraft has equipment, other than the equipment required by subsection (1), that is not serviceable or that has been removed, no person shall conduct a take-off in the aircraft unless

- (a) where the unserviceable equipment is not removed from the aircraft, it is isolated or secured so as not to constitute a hazard to any other aircraft system or to any person on board the aircraft;
- (b) the appropriate placards are installed as required by the *Aircraft Equipment and Maintenance Standards*; and
- (c) an entry recording the actions referred to in paragraphs (a) and (b) is made in the journey log, as applicable.

Canadian Aviation Regulation 605 Schedule 1 Journey Log

What has to be entered?

Particulars of any defect in any part of the aircraft or its equipment that becomes apparent during flight operations.

When does it have to be entered?

As soon as practicable after the defect is discovered but at the latest, before the next flight.

Who is responsible for the entry?

The Pilot in Command.

EFC MCM 4.8 DEFECT RECORDING, RECTIFICATION AND CONTROL

The aircraft must have all equipment required for the particular flight functioning properly prior to flight.

The Airplane Flight Manual may have an equipment list that specifies required equipment for certain types of operations. This equipment list shall be referenced for defect deferral evaluation if applicable. Required equipment listed in the AFM equipment list may not be deferred if it is listed as required for the intended flight. Equipment that is required by the CARs for the type of operation may not be deferred; the standards of airworthiness that apply to day or night VFR or IFR must be adhered to.

Defects are recorded in the aircraft Journey Logbook by the person/organization discovering the defect. Defect rectification and/or deferral are entered in the aircraft Journey Logbook by a person authorized by EFC.

Deferred defects are documented on the *Deferred Defect Sheet* in the aircraft Journey Logbook.

Deferred defects will be placarded when affecting operational equipment, to give unmistakable warning to the flight crew. The affected system will be deactivated when possible.

Defects discovered during flight operations shall be entered in the Journey Logbook by the PIC. EFC dispatch personnel shall ensure that an entry is made before the next flight.

Defects discovered outside of flight operations that are not rectified shall be entered into the Journey Logbook. Entry shall be made by the person who discovered the defect or any EFC staff member before the next flight.

If a Journey Logbook defect is rectified, details of the rectification action and certification, if required, shall be entered in the Journey Logbook by the person responsible for the work.

All defects which are deferred shall be clearly identified in the Journey Logbook. The deferred defect will also be transferred to the company *Deferred Defect Sheet* located in the front of the Journey Logbook.

Upon rectifying a deferred defect, an entry shall be made in the Journey Logbook detailing the rectification. The defect shall also be cleared on the *Deferred Defect Sheet*.

EFC Deferred Defect Sheet in Aircraft Journey Logbook

Defects must be recorded in the aircraft Journey Logbook by the person discovering the defect.

EXAMPLE Landing light inoperative. Signed by xxxxxxx.

Defect rectification and/or deferral can only be entered in the aircraft Journey Logbook by a person authorized by the EFC.

EXAMPLE Landing light deferral authorized by xxxxxx, DAY VFR only.

This entry may be made by the PIC or Dispatch if approved by the person authorizing the deferral.

Deferred defects must be documented on the *Deferred Defect Sheet* in the aircraft Journey Logbook. See *Deferred Defect Sheet* on the other side of this page.

Deferred defects must be placarded when affecting operational equipment, to give unmistakable warning to the flight crew.

EXAMPLE Placard-"Landing Light Inoperative".

The affected system will be deactivated when possible.

EXAMPLE Install tie wrap on Landing Light circuit breaker.

Defects that are discovered during flight operations must be entered in the Journey Logbook by the PIC. EFC dispatch personnel must ensure that the defect entry is made before the next flight.

Defects discovered outside of flight operations must be entered into the Journey Logbook. The defect entry shall be made by the person who discovered the defect or any EFC staff member before the next flight.

EXAMPLE During ground handling noted cord showing on L/H main tire signed by Dispatcher xxxxx.

All defects which are deferred, must be clearly identified in the Journey Logbook.

EXAMPLE "Landing Light Deferred"

The deferred defect will also be transferred to the company *Deferred Defect Sheet* located in the front of the Journey Logbook.

EXAMPLE DEFECT- "Landing Light Inoperative"

Note: Any Abnormal Occurrence must be documented in the Aircraft Journey Log. The aircraft can not be flown until the Aircraft has been inspected IAW CAR STD 625 Appendix G.

EXAMPLE hard landing, propeller overspeed, tire burst, extreme turbulence, bird strike, prop strike, ground handling damage, etc.

11. Completion Checklist

Tour of the Edmonton Flying Club facilities and location of fuel and oil disposal.

_____ Date, Signature

Type check exam completed, passed and corrected.

_____ Date, Signature

Membership completed. Familiarization with the online booking system use and flight times.

_____ Date, Signature

Explanation and competency check on aircraft documentation and sign out procedures.

_____ Date, Signature

Check flight(s) with instructor completed and up to flight test standards.

_____ Date, Signature

Current photocopies taken of License, Medical, and Radio.

_____ Date, Signature

Elementary Maintenance and Role Equipment training completed and signed off by an AME
(if available)

_____ Date, Signature