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Sample Examination

Private and Commercial
Pilot Licences

Helicopter

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FOREWORD

This sample examination has been developed by Transport Canada to assist candidates in preparing for the Private and Commercial Pilot Licences (Helicopter) written examinations.

The questions contained in the sample paper are selected to indicate the form and type of questions that may be encountered.

The Private and Commercial Pilot Licences (Helicopter) examination consisting of 100 questions each is set out in much the same proportion and order as in this sample paper.

Candidates are referred to the Study and Reference Guide titled Private and Commercial Pilot Licence including Aeroplane to Helicopter Pilot Licences (Helicopter) TP2476E which specifies the subject areas from which questions may be set.

ABBREVIATIONS

NOTE: The abbreviations and acronyms listed below may be used throughout this guide.

ADF	- automatic direction finding	lb.	- pound(s)
AGL	- above ground level	M	- magnetic
AME	- aircraft maintenance engineer	mb	- millibar(s)
ASL	- above sea level	METAR	- aviation routine weather report
ATC	- Air Traffic Control	MHz	- megahertz
ATS	- Air Traffic Services		
C	- Celsius	NM	- nautical mile(s)
CARs	- Canadian Aviation Regulations	OAT	- outside air temperature
CAS	- calibrated airspeed	OBS	- omnibearing selector
CDI	- course deviation indicator	SM	- statute mile(s)
C of A	- Certificate of Airworthiness	SVFR	- special VFR flight
DF	- direction finding	TAF	- terminal aerodrome forecast
ELT	- emergency locator transmitter	TAS	- true airspeed
ETA	- estimated time of arrival	TCA	- terminal control area
gph	- gallons per hour	UTC	- co-ordinated universal time (Z)
IAS	- indicated airspeed	VFR	- visual flight rules
IFR	- instrument flight rules	VHF	- very high frequency
in. Hg.	- inches of mercury	VNC	- VFR Navigation Chart
kHz	- kilohertz	VOR	- VHF Omnidirectional Range
kt.	- knot(s)	VORTAC	- combination of VOR and TACAN

1: AIR LAW

1. A Control Zone is
 - (1) the same as a Control Area.
 - (2) controlled airspace about an airport that extends upward, vertically from the surface to 3,000 feet AGL.
 - (3) always Class D Airspace.
 - (4) controlled airspace along airways above 2,200 feet ASL.

2. Would the regulations be violated, if a pilot voluntarily landed an aircraft in bright moonlight at an aerodrome where the length of the landing area was indicated by a single row of white lights?
 - (1) There would be no violation, provided the lights were in the centre of the landing area.
 - (2) There would be no violation, provided the aircraft was equipped with a functioning landing light.
 - (3) Yes, the CAR for aerodrome minimum lighting would have been violated.
 - (4) There would be no violation, provided air to ground communication was available.

3. No person shall fly an aircraft in Canada unless
 - (1) it is registered.
 - (2) there is in force with respect to the aircraft a flight authority or permit.
 - (3) its nationality and registration marks are affixed to the aircraft in a proper manner, and are clear and visible.
 - (4) all of the above conditions are met.

4. No person shall, walk, drive or park a vehicle on any part of an uncontrolled aerodrome used for the movement of aircraft except in accordance with permission given by
 - (1) the operator of the aerodrome.
 - (2) a qualified representative of a commercial air service being operated from the aerodrome.
 - (3) a Federal Peace Officer.
 - (4) the aerodrome UNICOM operator.

5. No person shall fly or attempt to fly as a flight crew member of an aircraft if that person
 - (1) is less than 18 years of age.
 - (2) has consumed alcohol or drugs within the 72 hour period prior to take-off.
 - (3) is aware of being under any physical disability that might render that person unable to meet the requirements for the issue or renewal of their licence or permit.
 - (4) is over 60 years of age.

6. When two aircraft are converging at approximately the same altitude, the aircraft that has the other on its right shall give way excepting that
 - (1) aeroplanes shall give way to rotary wing aircraft.
 - (2) helicopters shall give way to aeroplanes.
 - (3) gliders shall give way to aeroplanes.
 - (4) power-driven heavier-than-air aircraft shall give way to airships, gliders and balloons.

7. When two aircraft are approaching head-on or approximately so and there is danger of collision, each pilot shall
 - (1) alter heading to the right.
 - (2) alter heading to the left.
 - (3) avoid the other by changing altitude.
 - (4) turn on the anti-collision lights.

8. Except as provided by the CARs, unless taking off, landing or attempting to land, no person shall fly an helicopter over a built-up area or over any open air assembly of persons unless the helicopter is operated at an altitude from which, in the event of an emergency necessitating an immediate landing, it would be possible to land the helicopter without creating a hazard to persons or property on the surface, and, in any case, at an altitude that is not lower than above the highest obstacle within a radius of from the aircraft.
 - (1) 500 feet, 500 feet.
 - (2) 1,000 feet, 500 feet.
 - (3) 2,000 feet, 1,000 feet.
 - (4) 3,000 feet, 1 mile.

9. The amount of fuel carried on board any helicopter, at the commencement of any day VFR flight shall be sufficient, anticipated wind and other weather conditions having been considered, to fly
- (1) from point of departure to destination at minimum cruising speed.
 - (2) to the destination, and thereafter for 45 minutes at normal cruising speed.
 - (3) to the destination, and thereafter for 20 minutes at normal cruising speed.
 - (4) to the destination, thence to a specified alternate, and thereafter for 45 minutes at normal cruising speed.
10. The signal to an aircraft in flight which means "give way to other aircraft and continue circling" is
- (1) a steady red light.
 - (2) a series of green flashes.
 - (3) an intermittent white light.
 - (4) a succession of pyrotechnics showing red and green stars on bursting.
11. Any person holding a licence, permit or certificate issued under the authority of the CARs shall produce such document for inspection, upon demand by
- (1) an airport owner or operator.
 - (2) any pilot holding a senior licence.
 - (3) a peace officer, or immigration officer.
 - (4) a pilot holding a valid instructor rating.
12. If your Private Pilot Licence is endorsed for night flying you may carry passengers at night provided you have completed at least take-offs and landings by night in the same category and class of aircraft during the months immediately preceding the flight.
- (1) 2 , 3.
 - (2) 3 , 4.
 - (3) 5 , 6.
 - (4) 10 , 12.
13. An ATC clearance authorizing SVFR
- (1) relieves the pilot of the responsibility for avoiding weather conditions beyond the pilot's own flying capabilities.
 - (2) relieves the pilot of the responsibility of avoiding other aircraft.
 - (3) relieves the pilot of the responsibility of complying with the CARs.
 - (4) permits a pilot to fly in below VFR weather conditions without complying with the instrument flight rules.

14. An aircraft is in level cruising VFR flight above 3,000 feet AGL in Class E airspace. As the track is 315° , the aircraft shall be operated at an
- (1) even thousand foot altitude.
 - (2) odd thousand plus 500 foot altitude.
 - (3) odd thousand foot altitude.
 - (4) even thousand plus 500 foot altitude.
15. The minimum flight visibility for VFR flight in a Control Area is
- (1) 1 mile.
 - (2) 2 miles.
 - (3) 3 miles.
 - (4) 4 miles.
16. Pilots of aircraft are responsible for taking such action as is necessary to avoid a collision
- (1) unless flying in accordance with an ATC clearance.
 - (2) only when flying in VFR conditions.
 - (3) except when within visual range of the control tower.
 - (4) at all times.
17. When in VFR flight within an "Altimeter Setting Region", the altimeter should be set to
- (1) the current altimeter setting of the nearest station along the route of flight.
 - (2) 29.92 in. Hg. or 1013.2 mb.
 - (3) the station pressure of the nearest weather reporting station.
 - (4) the standard altimeter setting.
18. Runways at Canadian airports and aerodromes in the Southern Domestic Airspace are numbered to indicate, to the nearest even 10° , the runway bearing in degrees
- (1) true.
 - (2) magnetic.
 - (3) compass.
 - (4) grid.

19. Unless otherwise authorized, a pilot on a VFR flight operating within a Class C TCA must
- (1) request SVFR whenever the weather deteriorates below VFR limits.
 - (2) establish radio contact with the appropriate ATC unit only when transiting the associated Control Zone.
 - (3) receive a clearance from the appropriate ATC unit.
 - (4) contact Radar Service only when taking off or landing at the major airport concerned.
20. The holder of a student pilot permit may for the sole purpose of the holder's own flight training, act as PIC of an aircraft
- (1) only when accompanied by a flight instructor.
 - (2) by day and night.
 - (3) by day only.
 - (4) while carrying passengers.
21. Explosives or other dangerous articles shall not be carried on board any aircraft
- (1) except as authorized by the Minister.
 - (2) unless the appropriate ATC unit is advised.
 - (3) in which passengers are carried.
 - (4) except weapons or ammunition required for warfare.
22. The manoeuvring area of an aerodrome is that area
- (1) used for taxiing, taking off and landing.
 - (2) which includes the apron, taxiways and runways.
 - (3) used when taxiing to and from the parking area.
 - (4) normally referred to as the ramp or apron.
23. Any Canadian aviation document that has been cancelled or suspended under the CARs
- (1) is valid for a further period of 30 days without penalty.
 - (2) may not be revalidated under any circumstances.
 - (3) shall be destroyed by the holder of the certificate or licence.
 - (4) shall be surrendered to the Minister.

24. "Operator ", in respect of an aircraft, always means the
- (1) owner.
 - (2) lessee.
 - (3) person in possession of the aircraft.
 - (4) person renting the aircraft.

2: NAVIGATION

25. The east end of a runway oriented east and west is numbered
- (1) 090.
 - (2) 09.
 - (3) 270.
 - (4) 27.
26. If a heading of 250°M maintains your outbound track of 242°M, the required heading to maintain the reciprocal track back to your departure point would be
- (1) 078°M.
 - (2) 070°M.
 - (3) 062°M.
 - (4) 054°M.
27. Refer to Appendix: CFS - Lindsay, Ont. (CNF4)
- Select the correct statements regarding the aerodrome information.
- A. Circuits are right hand on runway 13 and 20.
 - B. Aircraft radio controlled aerodrome lighting is available.
 - C. There are PAPI lights on both runway 31 and 13.
 - D. Customs service is available.
 - E. The Control Zone extends for 7 NM.
 - F. There is an FSS at the aerodrome.
 - G. Aviation gasoline is available.
- (1) A, B, D, G.
 - (2) B, E, F.
 - (3) B, D, E, F.
 - (4) A, D, C.

NOTE: For questions 28 to 43 inclusive, refer to appendix #1 CROSS-COUNTRY FLIGHT

28. Refer to VNC

The hypsometric tinting on the chart indicates that between the Lindsay airport and Gananoque airport the flight will be conducted over ground which is mostly between

- (1) sea level and 1,000 feet.
- (2) sea level and 1,500 feet.
- (3) 1,000 feet and 2,000 feet.
- (4) sea level and 2,000 feet.

29. What is the magnetic track from Oshawa (CYOO) to Lindsay (CNF4)?

- (1) 200°.
- (2) 359°.
- (3) 010°.
- (4) 021°.

30. Wind 250°T at 20 kt.
True Air Speed 105 kt.
Track 010°T

Using the above information the computed heading and groundspeed en route Oshawa to Lindsay is nearest to

- (1) 010° M and 105 kt.
- (2) 360° M and 112 kt.
- (3) 012° M and 114 kt.
- (4) 031° M and 105 kt.

31. Refer to VNC

En route from Oshawa to Lindsay you pass through CYA 520(T). You must be more alert for

- (1) aircraft on approach to Lester B. Pearson International Airport (Toronto).
- (2) civilian flight training activity.
- (3) aerobatic activity.
- (4) military flight training activity.

32. Refer to VNC

The estimated flight time from Lindsay to Gananoque at 5,500 feet with a groundspeed of 100 kt. is nearest to

NOTE: Add an extra 2 minutes for each 1,000 feet of climb.

- (1) 1 hour and 05 minutes.
- (2) 1 hour and 20 minutes.
- (3) 1 hour and 15 minutes.
- (4) 1 hour and 25 minutes.

33. Average fuel consumption 5.5 gph
Total flight time 1 hour and 50 minutes

NOTE: Add 2.0 gal for taxi, take-off and climb at Oshawa.
Add 2.0 gal for taxi, take-off and climb at Lindsay.

Using the above information, calculate the day VFR fuel requirements for a flight from Oshawa to Gananoque with a stop at Lindsay.

- (1) 18.1 gal.
- (2) 14.1 gal.
- (3) 16.9 gal.
- (4) 12.8 gal.

34. Pressure altitude 5,500 feet
Outside Air Temperature (OAT) + 15° C
Indicated airspeed (IAS) 100 kt.

Assuming indicated airspeed (IAS) is equal to calibrated airspeed (CAS), the true airspeed (TAS) would be closest to

- (1) 90 kt.
- (2) 94 kt.
- (3) 107 kt.
- (4) 110 kt.

35. Refer to VNC

The highest obstacle within 5 NM either side of your track from Lindsay to Gananoque is

- (1) 1,600 feet ASL.
- (2) 1,449 feet ASL.
- (3) 1,275 feet ASL.
- (4) 1,246 feet AGL.

36. While on track abeam Peterborough you wish to obtain the latest weather for Kingston to get some indication of what conditions will be at Gananoque. What would be the most appropriate station and frequency to call for this information?

- (1) Peterborough UNICOM 122.8 MHz.
- (2) Toronto/Buttonville Radio 126.7 MHz.
- (3) Campbellford Radio 113.5 MHz.
- (4) Trenton Tower 128.7 MHz.

37. Your aircraft crosses the town of Bridgenorth (N44°23' W78°23') at 1810Z. At 1822Z your aircraft is over the town of Norwood (N44°23' W77°59'). Your ETA at Gananoque airport will be closest to

- (1) 1902Z.
- (2) 1908Z.
- (3) 1914Z.
- (4) 1920Z.

38. You note your position north of track over the town of Marlbank (N44°26' W77°05'). Using the opening and closing angles method, you would alter heading to the right

- (1) 2°.
- (2) 5°.
- (3) 8°.
- (4) 10°.

39. Refer to VNC

What class of airspace would you be flying through when your aircraft is at 5,500 ASL, over Marlbank (N44°26' W77°05')?

- (1) D.
- (2) E.
- (3) F.
- (4) G.

40. Refer to VNC

With the VOR receiver tuned to the Coehill VOR (N44° 40' W77° 50'), when you are over the town of Marlbank (N44°26' W77°05') the CDI should be

- (1) centred with a 'FROM' indication when the OBS is 123°.
- (2) centred with a 'FROM' indication when the OBS is 303°.
- (3) deflected full left when the OBS is 123°.
- (4) deflected full right when the OBS is 303°.

41. Refer to VNC

Due to poor weather you decide to divert to Kingston (CYGK), but you become disoriented and lost. To help you find the airport, Kingston FSS could provide you with a

- (1) radar vector.
- (2) ADF steer.
- (3) DF steer.
- (4) VOR vector.

42. Where a VFR flight plan has been filed and no search and rescue time has been specified in the flight plan, the pilot-in-command shall report the arrival to the appropriate ATS unit not later than

- (1) 30 minutes after the last reported ETA.
- (2) 1 hour after the last reported ETA.
- (3) 12 hours after landing.
- (4) 24 hours after landing.

43. Refer to VNC

What class of airspace is CYR 503 located 3 NM east of the Kingston (CYGK) airport?

- (1) D.
- (2) E.
- (3) F.
- (4) G.

44. The reported ceiling is 1,000 feet broken and visibility is 4 miles. To remain VFR, an aircraft cleared to the circuit must join

- (1) at 500 feet below cloud base.
- (2) at 700 feet AGL.
- (3) in accordance with special VFR.
- (4) as high as possible without entering cloud.

45. The smaller arc of the equator intercepted between the Prime Meridian and the Meridian of a place is a definition of

- (1) longitude.
- (2) local hour angle (LHA).
- (3) Greenwich hour angle (GHA).
- (4) latitude.

46. One minute of latitude is equal to

- (1) one minute of longitude.
- (2) one statute mile.
- (3) one nautical mile.
- (4) 5,000 feet.

47. An isogonal is a line on a map

- (1) used to indicate deviation.
- (2) joining points of equal variation.
- (3) joining points of equal elevation.
- (4) used to indicate compass direction.

48. An agonic line is as line of
- (1) zero deviation.
 - (2) zero variation.
 - (3) mean sea level contours.
 - (4) equal contour heights.
49. The line on the chart joining the points N44°30' W75°30' and N44°30' W80°00' represents
- (1) a parallel of latitude.
 - (2) a meridian.
 - (3) the shortest distance between the two points.
 - (4) a great circle.
50. The angle between the meridian over which a heavenly body is located and your own meridian is the definition of
- (1) longitude.
 - (2) local hour angle (LHA).
 - (3) latitude.
 - (4) Greenwich hour angle (GHA).
51. Refer to Appendix: HELICOPTER WEIGHT AND BALANCE LOADING DATA (Chart #2)
- | | |
|--------------------------|-------------------|
| Maximum Gross T/O Weight | - As per Chart #2 |
| Basic Empty Weight | - 2,200 lb. |
| Pilot | - 180 lb. |
| Front Seat Pax. | - 170 lb. |
| Rear Seat Pax. | - 160 lb. |
| Cabin Freight | - 250 lb. |
| Side Holds | - 200 lb. |
| Rear Hold | - 100 lb. |
| Fuel | - 850 lb. |
- Using the above information the helicopter's C of G
- (1) is 130.0 in.
 - (2) is 138.5 in.
 - (3) is 131.5 in.
 - (4) is 137.5 in.

52. Refer to Appendix: HELICOPTER WEIGHT AND BALANCE LOADING DATA (Chart#2)

Given:

Weight at take-off	4,100 lb.
Aft limit is	135.4 in.
Fuel consumption	225 lb./hr.

After a flight of one hour, the pilot can expect the C of G to

- (1) move forward to 133.5 in.
- (2) remain the same.
- (3) move aft to 137.5 in.
- (4) move outside the fore-aft limits.

3: METEOROLOGY

53. Relative humidity is the

- (1) amount of moisture present in the air.
- (2) weight of water present in the air.
- (3) amount of moisture present in the air compared to the amount the air could hold at that temperature and pressure.
- (4) temperature to which the air must be lowered to bring about saturation.

54. The cloud type usually associated with steady rain is

- (1) altostratus.
- (2) altocumulus.
- (3) stratocumulus.
- (4) nimbostratus.

55. Clouds form when moist warm air overruns cold air because the warm air

- (1) is cooled by the cold air underneath.
- (2) is cooled by the surrounding cold air aloft.
- (3) becomes unstable as a result of cooling from below.
- (4) cools as a result of expansion as it rises.

56. Advection fog forms when

- (1) moist air moves from a warm surface to a colder surface.
- (2) the cold ground cools the air in contact with it at night.
- (3) moist air is influenced by Orographic effect.
- (4) moist cool air moves from a cold surface to a warm surface.

57. In the northern hemisphere, the winds blow
- (1) clockwise around a high and a low.
 - (2) counter-clockwise around a high and a low.
 - (3) clockwise around a high and counter-clockwise around a low.
 - (4) counter-clockwise around a high and clockwise around a low.
58. During a descent from 2,000 feet AGL to the surface, you will usually find that the wind
- (1) veers and increases.
 - (2) backs and increases.
 - (3) veers and decreases.
 - (4) backs and decreases.
59. An aircraft flying an approach into a strong head wind encounters a sudden tailwind near the ground. The wind shear hazard to be expected is a sudden
- (1) increase in groundspeed and increase in lift.
 - (2) decrease in groundspeed and loss of lift.
 - (3) increase in airspeed and increase in lift.
 - (4) decrease in airspeed and loss of lift.
60. The conditions required for the formation of thunderstorms are
- (1) moist air, high temperature, and an inversion.
 - (2) Stratus cloud, high humidity and a lifting force.
 - (3) unstable air, high humidity and a lifting force.
 - (4) a mixing of two different air masses.
61. A condition when the air temperature aloft is higher than that of the lower atmosphere is generally referred to as
- (1) a low pressure area.
 - (2) an inversion.
 - (3) a reverse temperature condition.
 - (4) an inverse convection condition.
62. Air masses which are being cooled from below are characterised by
- (1) strong winds, cumulus cloud, good visibility.
 - (2) uniform temperature, good visibility.
 - (3) continuous rain, freezing temperature.
 - (4) fog, poor visibility and layer cloud.

63. A front is a
- (1) narrow zone of fog between a cyclone and an anticyclone.
 - (2) line of thunderstorms.
 - (3) narrow transition zone between two air masses.
 - (4) mass of layer cloud which is very thick and which covers a wide area.
64. During the passage of a cold front
- (1) warm air is compressed as cold air rides over it.
 - (2) temperature rises owing to increased pressure.
 - (3) fog will always form from the interaction of warm and cold air.
 - (4) warm air is lifted as colder air pushes under it.
65. Radiation fog forms as a result of the
- (1) passage of cold air over a warm surface.
 - (2) air becoming moist as it moves over the sea.
 - (3) clouds becoming cold and heavy at night so that they settle to the ground.
 - (4) ground becoming cold at night and cooling the air in contact with it.
66. The following sequence of clouds is observed at an airport: cirrus, altostratus, nimbostratus. The observer should expect
- (1) the passage of a cold front.
 - (2) anticyclonic weather.
 - (3) the passage of a warm front.
 - (4) clearing skies and a decrease in temperature.
67. Cloud heights in Canadian Aerodrome Forecasts (TAF) are given in
- (1) feet AGL.
 - (2) feet ASL.
 - (3) metres AGL.
 - (4) metres ASL.

68. Pressure Altitude 4,500 feet
Temperature 20°C

The density altitude will be nearest to

- (1) 7,300 feet.
- (2) 6,100 feet.
- (3) 5,400 feet.
- (4) 4,500 feet.

69. Aerodrome elevation 4,600 feet ASL
Altimeter Setting 29.52 in. Hg.

The pressure altitude is

- (1) 5,000 feet.
- (2) 4,640 feet.
- (3) 4,600 feet.
- (4) 4,200 feet.

70. Failure to adjust the altimeter when flying from an area of low pressure to an area of higher pressure will result in the aircraft indicated altitude reading

- (1) higher than the actual altitude.
- (2) lower than the actual altitude.
- (3) the actual true altitude.
- (4) the actual pressure altitude.

71. Refer to Appendix: WEATHER SYNOPSIS #100 (FD)

The average wind applicable to a direct flight from Winnipeg (CYWG) to Brandon (CYBR) at 5,500 feet would be

- (1) 290°M at 30 kt.
- (2) 290°T at 30 kt.
- (3) 310°M at 31 kt.
- (4) 310°T at 31 kt.

72. The forecast surface wind will be included in a GFA if it has a sustained speed of at least

- (1) 5 kt.
- (2) 10 kt.
- (3) 15 kt.
- (4) 20 kt.

73. Refer to Appendix: WEATHER SYNOPSIS # 100 (TAF)

The cloud condition at Churchhill (CYYQ) is forecast to

- (1) remain clear.
- (2) thicken and lower.
- (3) remain scattered until 0900Z.
- (4) become overcast at 200 feet.

74. Refer to Appendix: WEATHER SYNOPSIS # 100 (TAF)

The forecast visibility at Churchhill (CYYQ) between 1500Z and 2100Z is

- (1) 15 SM in wet snow.
- (2) 15 NM in wet snow.
- (3) greater than 6 NM.
- (4) greater than 6 SM.

75. Refer to Appendix: WEATHER SYNOPSIS # 100 (TAF)

The Gillam (CYGX) aerodrome forecast covers a period of

- (1) 24 hours.
- (2) 12 hours.
- (3) 10 hours.
- (4) 6 hour.

76. Refer to Appendix: WEATHER SYNOPSIS # 100 (TAF)

The Gillam (CYGX) 1800Z wind is forecast to be

- (1) 260°T at 10 kt.
- (2) 260°M at 10 kt.
- (3) variable at 3 kt.
- (4) calm.

77. Refer to Appendix: WEATHER SYNOPSIS # 100 (METAR/TAF)

The 1500Z Portage La Prairie (CYPG) METAR indicates that the

- (1) visibility is greater than forecast.
- (2) ceiling is lower than forecast.
- (3) winds are lower than forecast.
- (4) ceiling is as forecast.

78. Refer to Appendix: WEATHER SYNOPSIS # 100 (METAR)

The ceiling at Brandon (CYBR) at 1500Z is

- (1) 200 feet.
- (2) 1,000 feet.
- (3) 2,000 feet.
- (4) 10,000 feet.

79. Refer to Appendix: WEATHER SYNOPSIS # 100 (METAR)

The 1500Z temperature/dewpoint spread at Portage La Prairie (CYPG) is

- (1) minus 20°C.
- (2) minus 24°C.
- (3) minus 15°C.
- (4) 4° C.

80. Refer to Appendix: WEATHER SYNOPSIS # 100 (METAR)

The altimeter setting at Winnipeg (CYWG) is

- (1) 30.43 in. Hg.
- (2) 30.43 mb.
- (3) 933.2 in. Hg.
- (4) 1332.0 mb.

4: AERONAUTICS - GENERAL KNOWLEDGE

81. A METAR describes the weather

- (1) expected at a station at a given time.
- (2) expected at a station over a twelve hour period.
- (3) observed at a station at the time of the report.
- (4) observed at a station during the previous day.

82. The use of low octane fuel in a high compression engine may result in

- (1) too lean a mixture for best operation.
- (2) carburettor icing.
- (3) fouling of the spark plugs.
- (4) detonation.

83. If ice has accumulated on an aerofoil in flight, the stalling speed will
- (1) remain unchanged.
 - (2) decrease in all flight conditions.
 - (3) increase in level flight only.
 - (4) increase in all flight conditions.
84. If one magneto should fail on an engine equipped with dual ignition
- (1) a slight loss of power would result.
 - (2) there would be no effect on the engine.
 - (3) the engine would stop.
 - (4) half of the cylinders would not fire.
85. The use of carburettor heat will
- (1) increase manifold pressure and enrich the mixture.
 - (2) increase manifold pressure and lean out the mixture.
 - (3) decrease manifold pressure and enrich the mixture.
 - (4) decrease manifold pressure and lean out the mixture.
86. Under which conditions would the most serious carburettor icing be expected?
Outside air temperature range of and humidity.
- (1) -5°C to 15°C, high.
 - (2) 5°C to 27°C, low.
 - (3) -21°C to 0°C, low.
 - (4) -21°C to 0°C, high.
87. It is possible for carburettor icing to occur
- (1) in clear air with high relative humidity at above freezing temperatures.
 - (2) only when precipitation is present at freezing temperatures.
 - (3) only in cloud with high relative humidity.
 - (4) only when water droplets are in suspension in the air.
88. The initial application of carburettor heat will
- (1) increase power and enrich the mixture.
 - (2) decrease power and lean out the mixture.
 - (3) decrease power and enrich the mixture.
 - (4) increase power and lean out the mixture

89. An immediate rise in engine RPM is observed when full carburettor heat is applied. The most likely cause is
- (1) the mixture is too lean.
 - (2) on magneto is inoperative.
 - (3) the mixture is too rich.
 - (4) fuel contamination.
90. Float type carburetors are more prone to icing than fuel injection systems because in the
- (1) float type, fuel vaporization takes place near the carburettor throat.
 - (2) injection system, the fuel pressure at the discharge nozzle is greater thereby suppressing the formation of ice.
 - (3) float type, the location of the throttle valve is upstream from the venturi, providing a 'catch' for the ice to form.
 - (4) injection system, the fuel is preheated to suppress ice formation around the discharge nozzle.
91. Ground effect will enable a helicopter to hover with less power primarily due to
- (1) a decreased lift/drag ratio.
 - (2) an increase in downwash.
 - (3) a decrease in induced drag.
 - (4) an increase in blade tip vortices.
92. The correct height above sea level is indicated on a pressure altimeter set to 29.92 in. Hg. only when
- (1) the conditions of a Standard Atmosphere exist.
 - (2) a standard lapse rate exists.
 - (3) set to the local barometric pressure setting.
 - (4) the barometric pressure is 29.92 in. Hg.
93. The altimeter setting is 29.70 in. Hg. If the pilot inadvertently sets 30.70 in. Hg on the altimeter subscale, the altimeter will read
- (1) 1,000 feet high.
 - (2) 1,000 feet low.
 - (3) 100 feet high.
 - (4) 100 feet low.

94. A major early symptom of hypoxia (lack of sufficient oxygen) is
- (1) drowsiness.
 - (2) dizziness.
 - (3) euphoria (increased sense of well being).
 - (4) hyperventilation (overbreathing).
95. The tendency of the human eye to focus at a point three to five feet away, due to lack of stimulation, is called
- (1) retinitis.
 - (2) tunnel vision.
 - (3) empty-field myopia.
 - (4) far-sighted myopia.
96. The effects of one drink of alcohol at sea level will
- (1) increase with an increase in altitude.
 - (2) decrease with an increase in altitude.
 - (3) remain the same with an increase in altitude.
 - (4) remain constant to 6,000 feet ASL.
97. During an approach to land on an upsloping runway, the pilot may experience the illusion that the aircraft is
- (1) higher than it actually is.
 - (2) lower than it actually is.
 - (3) closer in than it actually is.
 - (4) approaching faster than it actually is.
98. When turning from downwind to into-wind at low altitude, a pilot may experience an illusion of
- (1) slipping and decreasing airspeed.
 - (2) skidding and decreasing airspeed.
 - (3) slipping and increasing airspeed.
 - (4) skidding and increasing airspeed.

99. Refer to Appendix: TURN CO-ORDINATOR (DIAGRAM #1)

The turn co-ordinator indicates that the aircraft is in a

- (1) slipping left turn.
- (2) skidding left turn.
- (3) slipping right turn.
- (4) skidding right turn.

100. Deceleration errors in the magnetic compass would be most pronounced on headings of

- (1) North and South.
- (2) East and North.
- (3) East and West.
- (4) West and South.

APPENDIX

For

Sample Examination

Private and Commercial
Pilot Licences

Helicopter

First Edition
October 2002

APPENDIX 1CROSS-COUNTRY FLIGHTChart:

This navigational exercise is based on the **Toronto VNC Series 27 AIR 1827 labeled FOR EXAMINATION PURPOSES ONLY**. This chart may be ordered from the Transport Canada Civil Aviation Civil Aviation Communications Centre at 1-800-305-2059 or in the National Capital Region (613) 993-7284. It may also be ordered from the Civil Aviation web site: <http://www.tc.gc.ca/aviation>. A suitable alternative would be the current Toronto VNC

Flight Planning Details:

The cross-country is based on a day VFR flight from Oshawa Airport (N43°55' W78°54') to Gananoque Airport (N44°24' W76°15') via Lindsay Airport (N44°22' W78°47').

Depart Oshawa Airport (CYOO) and set course overhead direct to Lindsay Airport (CNF4) at an altitude of 3,500 feet ASL with a planned stop at Lindsay. Depart Lindsay and set course overhead direct to Gananoque Airport (CNN8) at an altitude of 5,500 feet ASL.

Weather:

The weather is forecast to be VFR for the duration of the flight.

Aircraft Information and Equipment:

The helicopter is a four place single-engine.

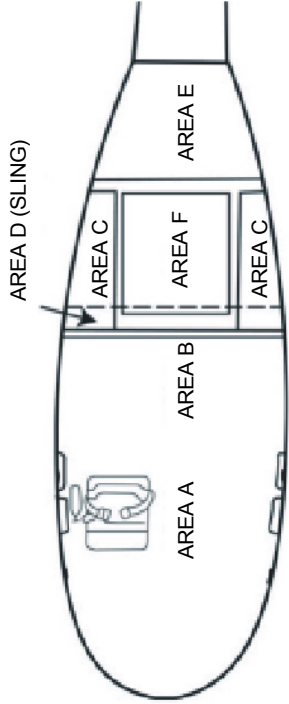
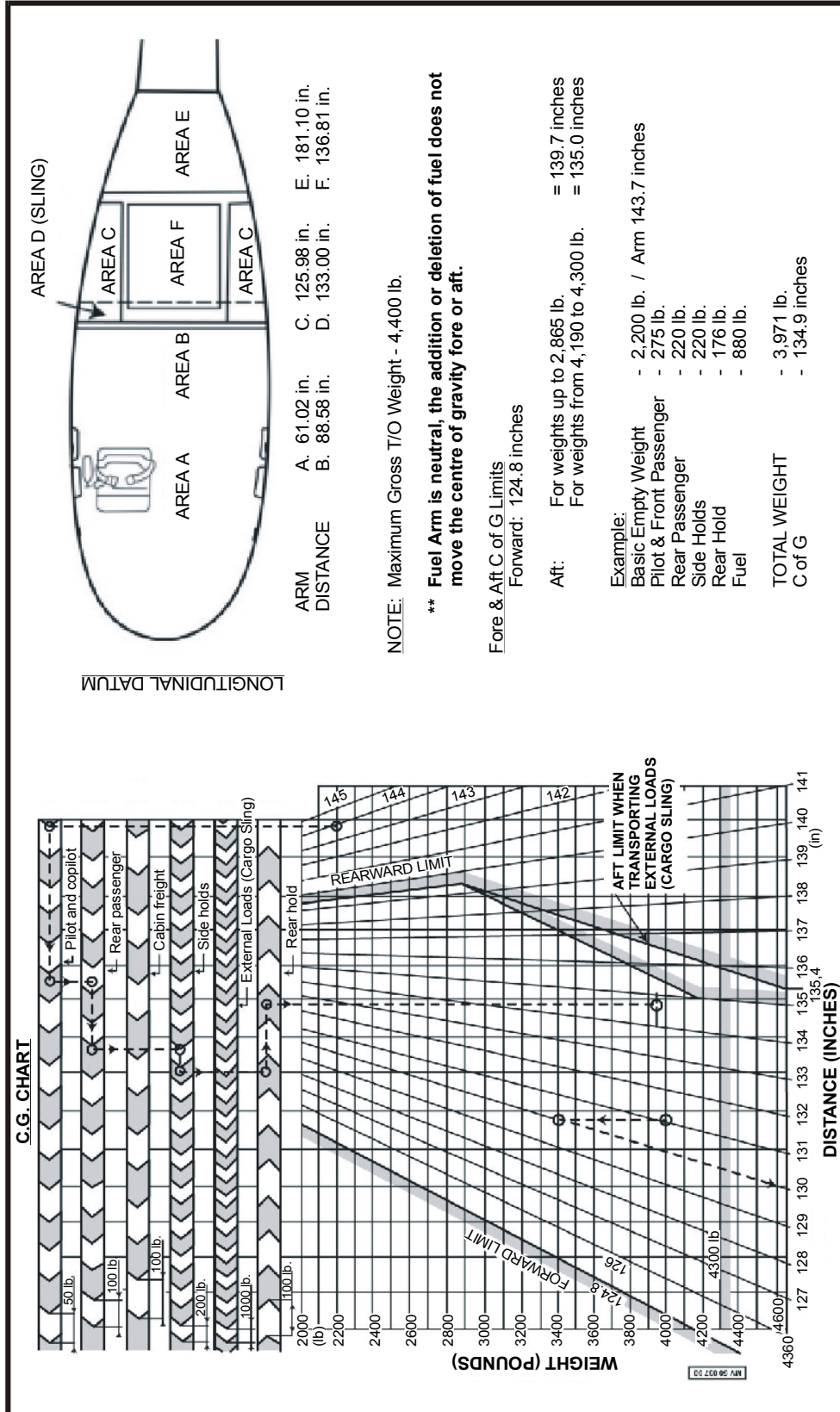
- One 720 Channel Transceiver (VHF).
- One VOR Receiver.
- One Transponder (Mode C).
- One ELT.

- NOTE:
1. Compute all distances in Nautical miles (NM) and speeds in nautical miles per hour (KT).
 2. Although this exam does not have GFA questions the charts are included for sample purposes.
 3. The centre of the aerodrome symbols should be used as measuring points.

CFS - LINDSAY, Ont.

LINDSAY ON		CNF4	
REF	N44 21 53 W78 47 02 1.1WNW 11° W UTC-5(4) Elev 882' A5000 F-21 LO6 CAP		
OPR	Lindsay Airpark Ltd. 705-324-8921 Cert ltd hrs		
PF	B-1,2 C-3,4,5,6		
CUST	AOE-X 888-226-7277 14-22Z Mon-Fri exc hols		
FLT PLN	NOTAM FILE CYQA CXYZ		
FSS	W1 800-INFO FSS		
SERVICES			
FUEL	80, 100LL, Nov-Apr 14-22Z, May-Oct 13-23Z		
OIL	All		
S	3		
RWY DATA	Rwy 13/31 3500x75 asphalt Rwy 0220 2642x75 turf Thld 02 displ 360' Opr No win maint rwy 02/20		
RCR			
LIGHTING	13-(TE LO), 31-(TE LO) ARCAL-122.8 type J; rotating bcn inop after 0459Z (DT 0359Z).		
COMM			
ATF	unicom ltd hrs O/T tfc 122.8 5NM 3900 ASL		
ARR	Toronto Centre 134.25		
DEP	Toronto Centre 134.25		
NAV			
VOR/DME	SIMCOE YSO 117.35 Ch 120(Y) N44 14 19 W79 10 18 (931') 076 18.4NM to A/D		
PRO	Rgt hand circuits rws 13 & 20		

HELICOPTER WEIGHT & BALANCE LOADING DATA (Chart #2)



ARM DISTANCE

A.	61.02 in.	C.	125.98 in.	E.	181.10 in.
B.	88.58 in.	D.	133.00 in.	F.	136.81 in.

NOTE: Maximum Gross T/O Weight - 4,400 lb.

**** Fuel Arm is neutral, the addition or deletion of fuel does not move the centre of gravity fore or aft.**

Fore & Aft C of G Limits

Forward: 124.8 inches

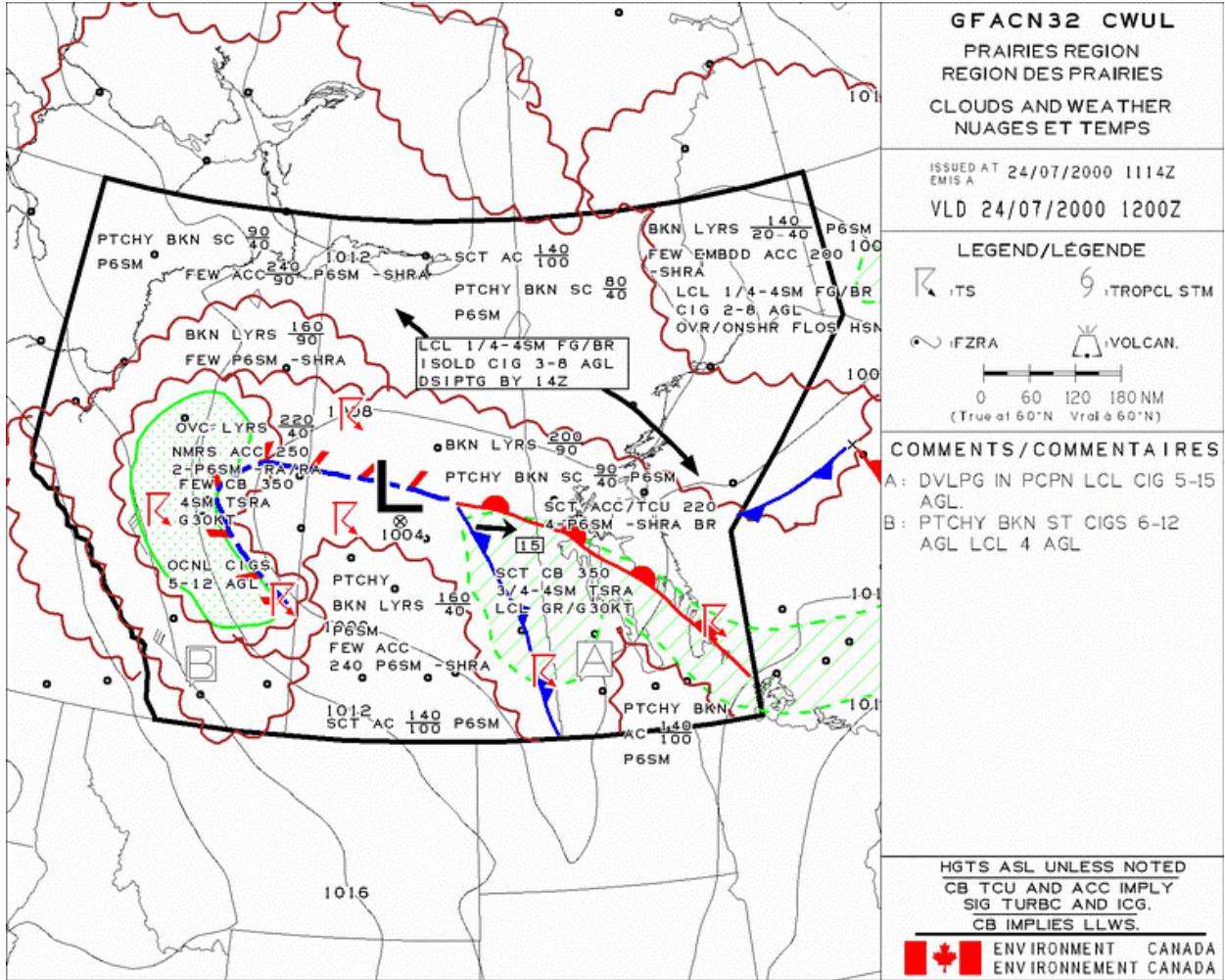
Aft: For weights up to 2,865 lb. = 139.7 inches
 For weights from 4,190 to 4,300 lb. = 135.0 inches

Example:

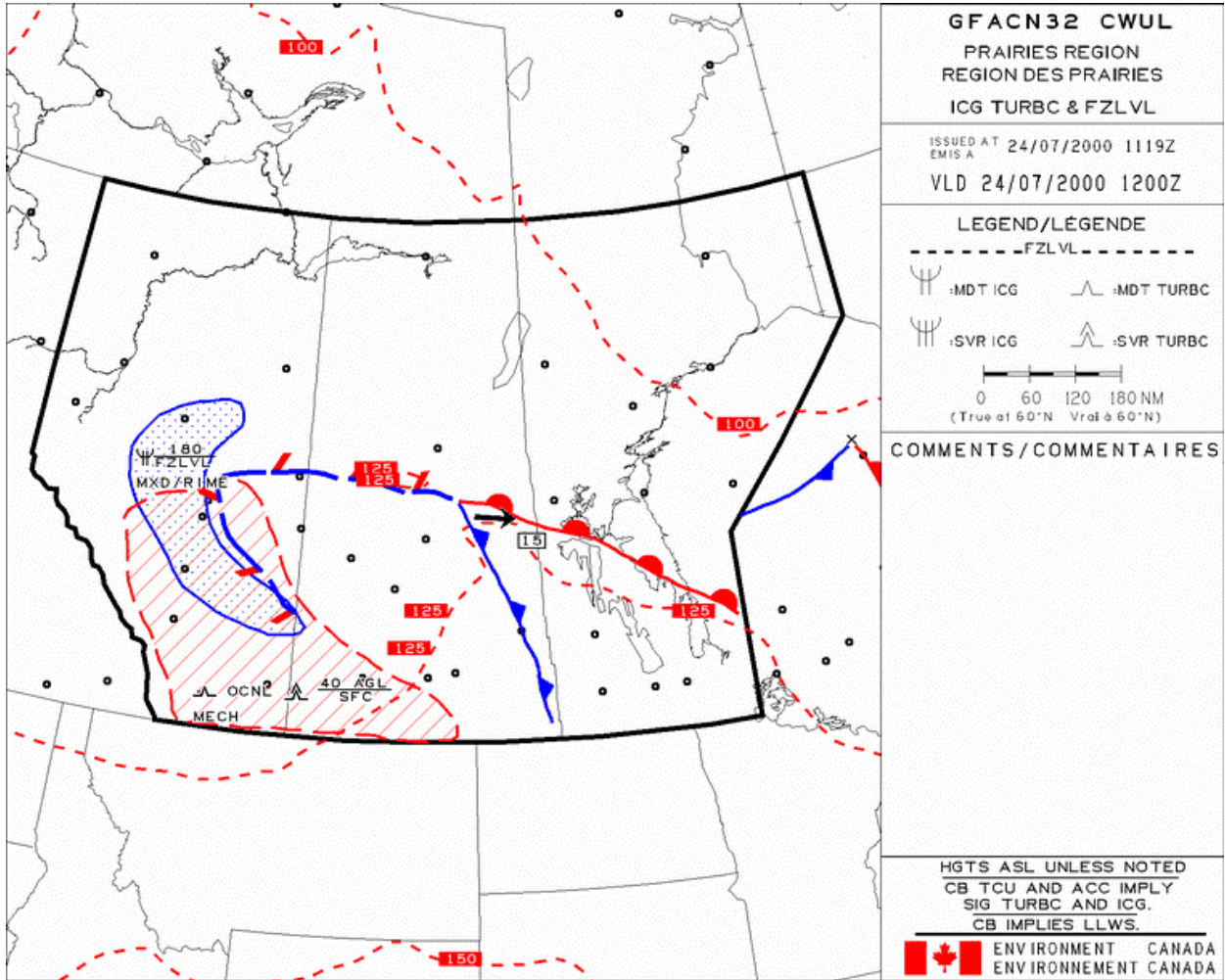
- Basic Empty Weight - 2,200 lb. / Arm 143.7 inches
- Pilot & Front Passenger - 275 lb.
- Rear Passenger - 220 lb.
- Side Holds - 220 lb.
- Rear Hold - 176 lb.
- Fuel - 880 lb.

TOTAL WEIGHT - 3,971 lb.
 C of G - 134.9 inches

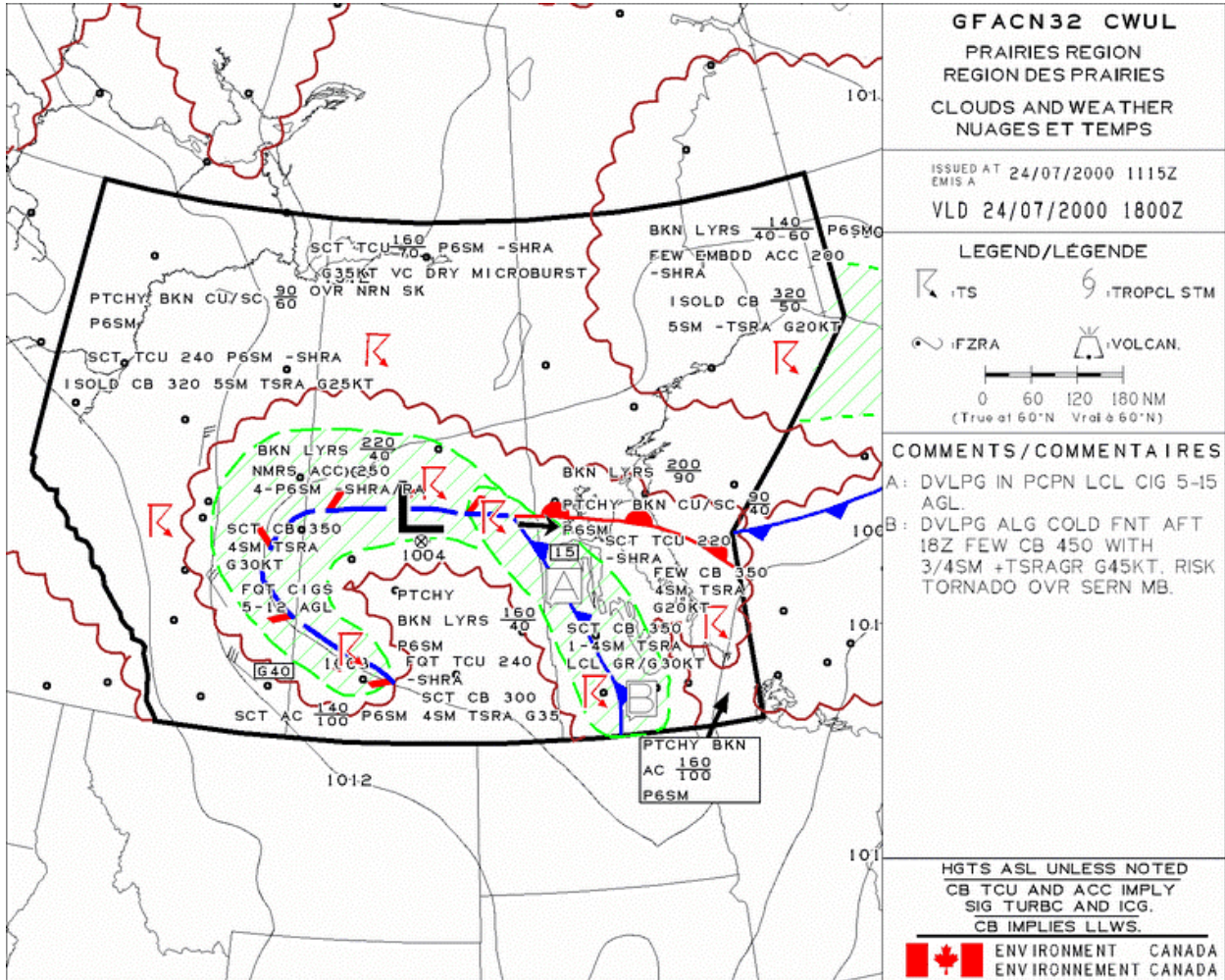
WEATHER SYNOPSIS #100 (Page 1 of 7)



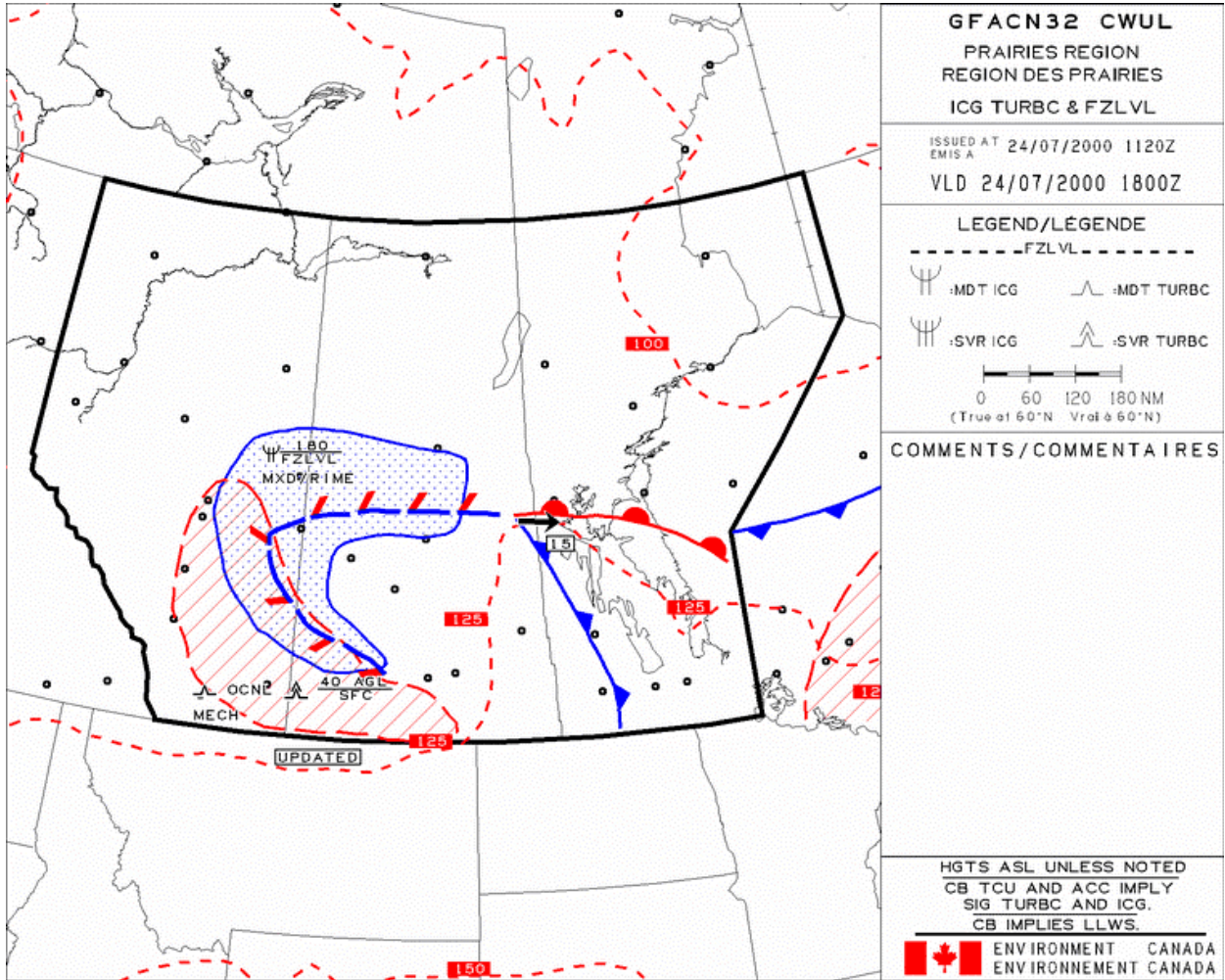
WEATHER SYNOPSIS #100 (Page 2 of 7)



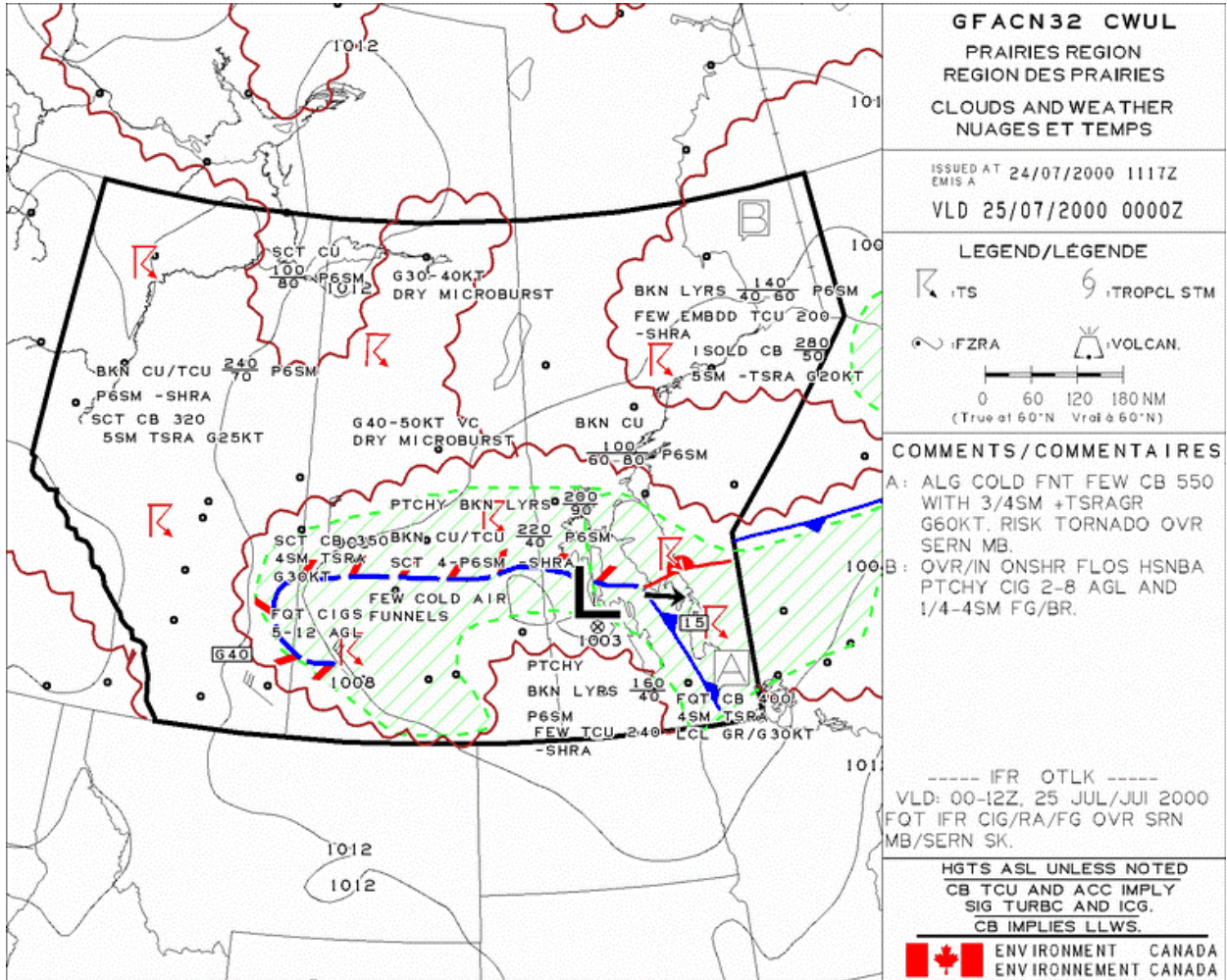
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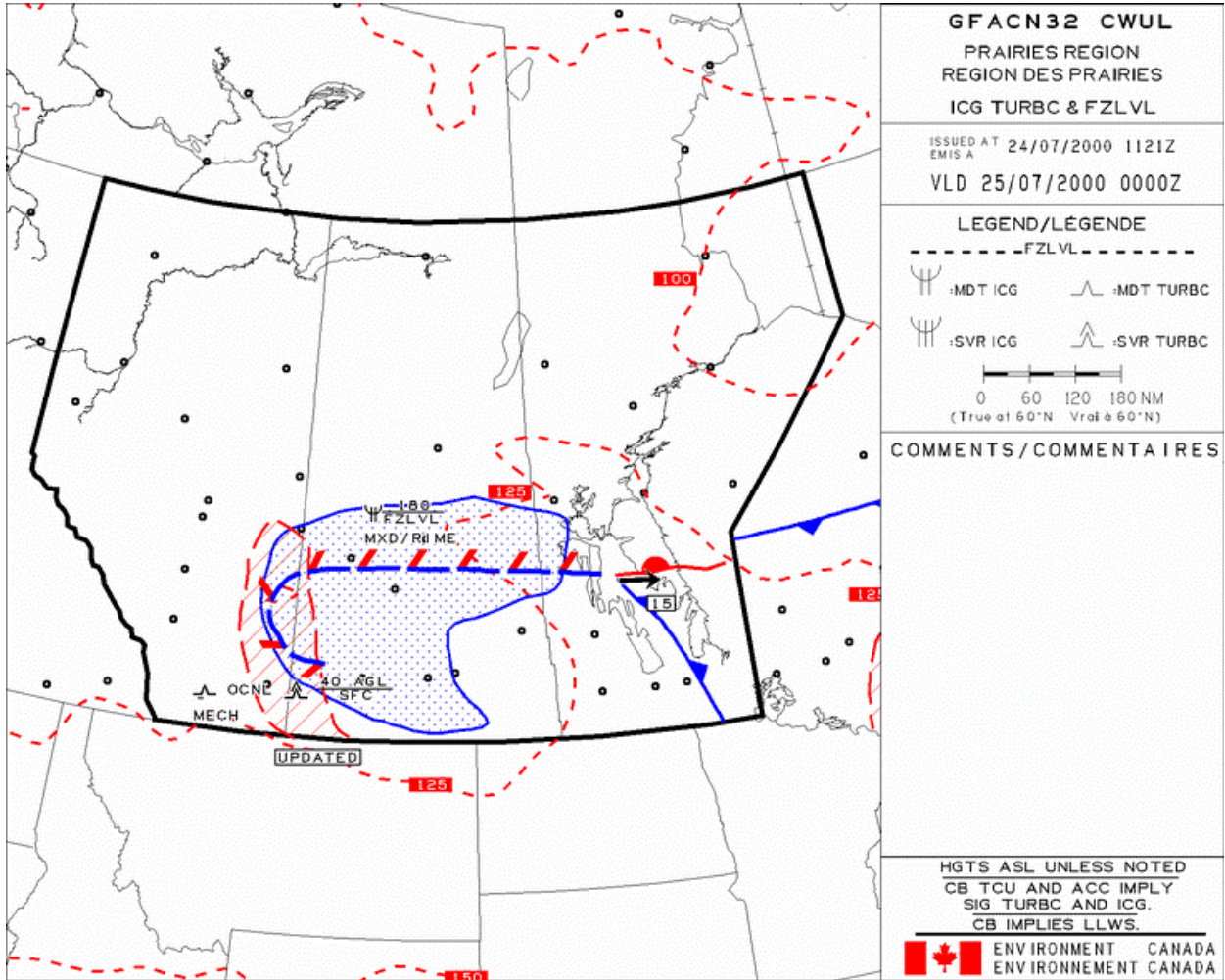
WEATHER SYNOPSIS #100 (Page 4 of 7)



WEATHER SYNOPSIS #100 (Page 5 of 7)



WEATHER SYNOPSIS #100 (Page 6 of 7)



WEATHER SYNOPSIS #100 (Page 7 of 7)

FTCN34 CWEG 071000

TAF CYBR 071030Z 071123 27010KT P6SM SCT020 RMK NXT FCST BY 17Z=

TAF CYPG 071245Z 071323 34015KT P6SM SCT010 SCT020 RMK NXT FCST
BY 17Z=TAF CYWG 071030Z 071111 36015KT P6SM SCT010 SCT020 FM1200Z
36015KT P6SM SCT020 BECMG 2300 27010KT RMK NXT FCST BY 17Z=TAF CYGX 071245Z 071323 VRB03KT P6SM IC SKC FM1800Z 26010KT P6SM
SCT100 SCT250 RMK NXT FCST BY 17Z=TAF CYYQ 071030Z 071111 30010KT WS015/35030KT P6SM IC SCT250
FM2100Z 26010KT WS015/35030KT P6SM SCT030 SCT100 BKN250
FM0200Z 33015KT P6SM BKN030 BKN100 TEMPO 0209 3SM -SN
FM0900Z 34020KT 3SM BLSN OVC020 TEMPO 0911 1SM -SN BLSN
OVC020 RMK NXT FCST BY 17Z=

SACN31 CWA0 071500

METAR CYBR 071500Z 29012KT 15SM SCT020 BKN 100 M21/M25 A3043 RMK
SLP351=METAR CYPG 071500Z 34010KT 15SM FEW015 FEW250 M20/M24 A3045 RMK
SC1CI1 SLP342=

METAR CYWG 071500Z 34008KT 15SM SKC M24/M28 A3043 RMK SLP332=

METAR CYGX 071500Z 26006KT 15SM SKC M29/M34 A3027 RMK SLP275=

METAR CYYQ 071500Z 25006KT 15SM IC FEW090 M30/M35 A3023 RMK AC1
SLP249=

FDCN CWA0 061920

ISSUED 1200Z 07 FEB 1995 FOR USE 6-17Z

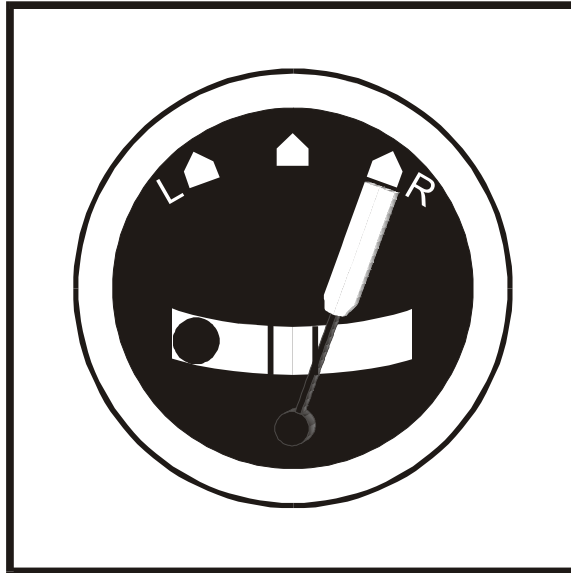
	3000	6000	9000	12000	18000	24000
YWG	2825	2728-07	2932-10	2935-15	2939-26	2841-38
YBR	3030	3132-06	3133-10	3135-15	3041-28	2948-40
YYQ	3529	3428-13	3229-14	3130-19	3032-32	2733-42
YYL	3327	3435-10	3338-14	3337-19	3136-31	3038-44

STATION IDENTIFIERS

CYBR - Brandon
 CYWG - Winnipeg
 CYTH - Thompson
 CYYL - Lynn Lake

CYPG - Portage La Prairie
 CYQD - The Pas
 CYGX - Gillam
 CYYQ - Churchill

TURN & BANK INDICATOR (Diagram #1)



Appendix 0036

APPENDICE IIANSWER KEY

1-	2	35-	1	69-	1
2-	3	36-	2	70-	2
3-	4	37-	3	71-	2
4-	1	38-	2	72-	4
5-	3	39-	2	73-	2
6-	4	40-	1	74-	4
7-	1	41-	3	75-	3
8-	2	42-	2	76-	1
9-	3	43-	3	77-	3
10-	1	44-	1	78-	4
11-	3	45-	1	79-	4
12-	3	46-	3	80-	1
13-	4	47-	2	81-	3
14-	4	48-	2	82-	4
15-	3	49-	1	83-	4
16-	4	50-	2	84-	1
17-	1	51-	1	85-	3
18-	2	52-	2	86-	1
19-	2	53-	3	87-	1
20-	3	54-	4	88-	3
21-	1	55-	4	89-	1
22-	1	56-	1	90-	1
23-	4	57-	3	91-	3
24-	3	58-	4	92-	1
25-	4	59-	4	93-	1
26-	4	60-	3	94-	3
27-	1	61-	2	95-	3
28-	1	62-	4	96-	1
29-	4	63-	3	97-	1
30-	3	64-	4	98-	2
31-	2	65-	4	99-	4
32-	2	66-	3	100-	3
33-	3	67-	1		
34-	4	68-	2		