Updated: October 2025

Hanscom Flight Training Center

Archer III Written Test – specific for N157WA

This exam assumes the pilot is familiar with the Piper Warrior II and passed the Hanscom Flight Training Center's written exam for it.

1. You entered an inadvertent spin. The steps for recovery are to be applied in the following order:
    (A) Throttle: Idle, Ailerons: Neutral, Rudder: Full opposite to rotation, Elevator: Slightly forward. Upon recovery, Rudder: neutralize, Elevator: smooth back pressure.
    (B) Rudder: Full opposite to rotation, Elevator full forward and Ailerons neutral, Throttle: Idle. Upon recovery, Rudder: neutralize, Elevator: smooth back pressure.
    (C) Throttle: Idle, Rudder: Opposite rotation as required, Elevator: full forward and Ailerons neutral. Upon recovery, Elevator: smooth back pressure, Rudder: neutralize.
    (D) None of the above.

2. The ADAHRS has failed. Some of the effects of the failure are:
    (A) The altimeter on the PFD will indicate the last altitude while the failure took place.
    (B) The MFD will turn black and the PFD will revert to reversionary mode.
    (C) The engine RPM will have a yellow or red "X" displayed over it.
    (D) The Attitude, Altitude and Airspeed information on the PFD will have an "X" displayed over it and the heading information will no longer be displayed.

3. A "FUEL IMBAL" CAS message indicates that:
    (A) The engine-driven fuel pump has failed.
    (B) Left and right fuel quantities differ by 10 gallons or more.
    (C) The fuel entered by the pilot and the fuel detected by the fuel gauges differ by 10 gallons or more.
    (D) None of the above.

4. In case of an electrical fire in flight:
   (A) Pull circuit breakers of suspected equipment.
   (B) Turn off BATT MASTR, ALTR and EMERG BATT.
   (C) Verify that EMERG BATT is armed. Turn off BATT MASTR and ALTR.
   (D) None of the above.

5. CAS message indicating failure of the Pitot heater:
   (A) Reads “PITOT HEAT FAIL”.
   (B) Reads “PITOT HEAT OFF” – if you encounter it while Pitot heat switch is on, it means the Pitot heater element has failed.
   (C) Pitot heater failure is not indicated by a CAS message.
   (D) None of the above.

6. Which of the following is not controlled by the autopilot:
   (A) Pitch (through the usage of the elevator trim servo)
   (B) Roll (through the usage of the aileron servo)
   (C) Yaw (through the usage of the rudder servo)
   (D) All of the above are controlled by the autopilot.

7. If the autopilot is engaged in NAV mode tracking a GPS course and GPS reception is lost, the autopilot:
   (A) Will revert to HDG mode
   (B) Will revert to ROL mode
   (C) Will revert to PIT mode
   (D) None of the above

8. The best practice for using the autopilot’s vertical mode is:
   (A) FLC for climbs, PIT for descends
   (B) ROL for climbs, FLC for descends
   (C) VS for climbs, FLC for descends
   (D) FLC for climbs, VS for descends

9. The following disconnect the autopilot:
   (A) Pressing the red “Autopilot Disconnect” button on the yoke.
   (B) Pressing the “AP” button on the autopilot control panel.
   (C) Pressing the electric trim lever on the yoke.
   (D) All of the above.

10. Runaway pitch trim:
    (A) Hold the control yoke firmly, crosscheck the attitude indicators, press and hold the autopilot disconnect switch on the yoke, pull the pitch trim circuit breaker, and re-trim the airplane manually.
    (B) Can potentially major issue but can be resolved by pressing and holding the autopilot disconnect button and pulling the autopilot circuit breaker.
    (C) Can be overcome by holding the control yoke firmly, as the autopilot was designed so it is can be easily overpowered.
    (D) Is a non-urgent maintenance issue. If encountered in flight, use manual trim, but make sure to write it as a squawk.

11. The emergency battery:
    (A) Is used to power the starter.
    (B) In case of an alternator failure, provides power to the airplane systems alongside the primary battery.
    (C) In case of an alternator failure and a failure/depletion of the primary battery, the emergency battery provides power to the systems connected to the emergency bus.
    (D) None of the above.

12. The following <u>cannot</u> be powered by the primary battery:
    (A) NAV2
    (B) COM1
    (C) MFD
    (D) All of the above may be powered by the primary battery

13. The following <u>can</u> be powered by the emergency battery:
    (A) NAV2
    (B) COM1
    (C) MFD
    (D) None of the above can be powered by the emergency battery

14. During preflight the emergency battery shows voltage of 23.0 V. What is the appropriate action?
    (A) No special action is required.
    (B) The plane may not be flown and the issue should be written as a squawk.
    (C) The voltage should be checked again after runup by turning off the AVION MASTER switch, turning off the ALTR and BATT MASTR, and then if the voltage is at least 23.3 V, these switches can be turned on again and the flight may commence.
    (D) None of the above.

15. Which of the situations below would turn the display to reversionary mode?
    1. Loss of PFD.
    2. Loss of MFD.
    3. Manually pressing the DISPLAY BACKUP button on the audio panel.
    (A) 3
    (B) 1+3
    (C) 2+3
    (D) 1+2+3

16. The AVION MASTER switch is off. The following <u>will</u> function:
    (A) COM 1.
    (B) Autopilot.
    (C) MFD.
    (D) All of the above will function if AVION MASTER switch is off.

17. Engaging the starter:
    (A) Should not exceed 30 seconds at a time.
    (B) Is not limited if external power is used.
    (C) If start is not achieved on fifth attempt, allow starter to cool for 30 minutes.
    (D) All of the above.

18. Hot engine start:
    - (A) Is performed with the fuel pump off.
    - (B) Is performed with the mixture rich.
    - (C) Is to be performed when the engine oil is at 140°F or above.
    - (D) All of the above.

19. Flooded engine start:
    - (A) Is performed with the fuel pump off.
    - (B) Is performed with the mixture rich.
    - (C) Is to be performed when the engine oil is at 140°F or above.
    - (D) All of the above.

20. Regarding leaning of the mixture:
    - (A) Leaning the engine to best economy is done by leaning to peak EGT or when engine roughness is encountered.
    - (B) Leaning may only be done if engine is at or below 75% power.
    - (C) For best power, enrich the mixture such that EGT is 100°F lower than peak economy EGT.
    - (D) All of the above.

21. The amount of fuel displayed in each tank:
    - (A) Uses float type fuel sensor in each wing, sent to the G1000 GEA and then displayed to the pilot.
    - (B) Starts with an initial value at the beginning of the flight, from which the fuel totalizer deducts the amount of fuel used during the flight.
    - (C) Receives data both by the fuel sensor and the fuel totalizer and displays the average of the two.
    - (D) None of the above.

22. The total amount of fuel on board displayed in the engine page:
    - (A) Uses float type fuel sensor in each wing, sent to the G1000 GEA and then displayed to the pilot.
    - (B) Starts with an initial value at the beginning of the flight, from which the fuel totalizer deducts the amount of fuel used during the flight.
    - (C) Receives data both by the fuel sensor and the fuel totalizer and displays the average of the two.
    - (D) None of the above.

23. The ADAHRS provides, among others:
    (A) Fuel consumption information.
    (B) VOR navigation information.
    (C) Altitude and attitude information.
    (D) All of the above.

24. The plane's electrical system:
    (A) Is a 28V electrical systems.
    (B) It includes a 70 Amp alternator.
    (C) It includes two 24V batteries.
    (D) All of the above.

25. If the standby instrument display is inoperative, the following operations are permitted (assume all the other airplane's system are operational):
    (A) All types of operations are permitted: VFR day and night and IFR day and night.
    (B) VFR day and night operations are permitted but IFR operations are forbidden.
    (C) VFR day only operations are permitted, any other flight is not permitted.
    (D) All flight operations are forbidden.

26. Electronic stability protection:
    (A) Will only function when the airplane is above 200' AGL and the autopilot is not engaged.
    (B) May turn on at an unusual pitch or bank attitude.
    (C) Can be disabled by pressing and holding the "Autopilot Disconnect" button.
    (D) All of the above

27. Select the correct/true statements regarding COM frequencies, referencing the image below:

(1) Pushing the PTT will transmit on COM1
(2) Rotating the COM knob will change the standby frequency of COM1
(3) Current active frequency on COM1 is 128.050
(4) Current standby frequency on COM2 is 123.000
(5) Current active frequency on COM2 is 123.900
(6) COM2 active frequency is identified as ARTCC SALT LAKE CITY

The true statements are:

(A) 1, 3
(B) 1, 2, 5, 6
(C) 2, 3, 6
(D) None of the above

28. Under the plane's load described below, what is the maximal amount of fuel that can be loaded onto N157WA and still remain within weight, CG limits and usable fuel capacity:

	Weight (lbs)	Arm (inch)	Moment (lbs·inch)
Empty plane	1,818.4	90.54051	164,638.9
Pilot seat	180		
Co-pilot seat	172		
Rear passenger	150		
Baggage	25		

(A) 22 gallons
(B) 34 gallons
(C) 48 gallons
(D) None of the above

29. You are planning to take off from Lake Placid airport in NY (LKP), where the airport current pressure altitude is 2,000’, the wind is calm and the current temperature is 30$\circ$C. You calculate the plane’s weight to be 2400 lbs. The flaps-up takeoff ground roll is (choose the closest answer):
    (A) 950’
    (B) 1,200’
    (C) 1,300’
    (D) 1,475’

30. After departing LKP, you are climbing to 8,000’, where the temperature is 17$\circ$C. How long do you expect the climb to take?
    (A) 12 minutes
    (B) 16 minutes
    (C) 20 minutes
    (D) None of the above

31. You are cruising at 8,000’, temperature 17$\circ$C, using 65% power, and lean the mixture to best economy. You expect your airspeed to be:
    (A) 108 knots IAS
    (B) 108 knots TAS
    (C) 119 knots IAS
    (D) 119 knots TAS

32. When you departed, your take-off weight was 2456 lbs. During the flight, you consumed about 26 gallons of fuel, and you are approaching your destination – Provincetown Municipal Airport (PVC), which is at pressure altitude of 0’ with a temperature of 10$\circ$C and calm winds. You expect your landing ground roll to be (choose the closest answer):
    (A) 820’
    (B) 900’
    (C) 1,320’
    (D) 1,380’

The following questions are for instrument rated pilots and instrument students

33. You are flying an ILS approach using the APR mode. The plane is currently at 2,200' MSL and descending at 450'/min, you have set the altitude bug to 2,000' (missed approach altitude) and the minimum to 390' (the approach minimum). The autopilot:
    (A) Will stop your descent at 2,000' MSL and switch to ALT mode as that is the bugged altitude.
    (B) Will not stop the descent at any point but will give an "Altitude" callout as you depart 2,000' MSL.
    (C) Will stop the descent at 390' MSL – the set approach minimum – to descend beyond that point the only option is to disconnect the autopilot.
    (D) None of the above.

34. You have loaded the ILS 11 approach into BED with a minimum of 390'. The runway in use just changed and you are requested to prepare for ILS 11 circling runway 5. How can you change the minimum you entered?
    (A) By pressing the TMR/REF soft key on the PFD.
    (B) By accessing the approach minimums indicated on the flight plan page.
    (C) By selecting the appropriate minimum using the ALTITUDE knob, then pressing and holding the ALT knob for more than 5 seconds.
    (D) None of the above.

35. During an approach, the autopilot should be disconnected at:
    (A) At 200' AGL
    (B) At MDA/DA
    (C) At FAF
    (D) None of the above

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