Aircraft Questionnaire (Open Book)

PIPER PA-27-250 AZTEC

Applicant's Name: _____

Date Graded: _____

Instructor's Name: _____

1. The maximum allowable gross weight for takeoff is ____ pounds and the maximum usable fuel is ___ gallons. The maximum landing weight is ___ pounds. All weight above ____ pounds up to maximum gross weight must be in fuel.
2. With an empty weight of 3158 pounds and a full fuel load of _____ usable gallons, the maximum cabin load is ____ pounds for takeoff at maximum gross weight.
3. Aircraft control is more difficult with the left engine inoperative than it is with the right engine inoperative because:

   _____

4. The following are the airspeed (MPH) limitations at 5200 pounds

V_{s0} ___	V_{s1} ____	Vmca ___
Vx ___	Vxse ____	Vyse ___
Vy ___	Va ____	Vle ____
Vfe (1/4) ____	Vfe (1/2) ____	Vfe (Full) ____
Vno ____	Vne ____	

5. The power plants are Lycoming IO-540, fuel injected, that each produce ____ horsepower at ____ RPM. The cruise climb speed at 5200 pounds is ____ MPH.
6. The hydraulic system is used for extension and retraction of both landing gear and flaps. Pressure for the system is supplied by the engine driven hydraulic pump mounted on the ____ engine or _____.
7. The landing gear and flap handle protrude from the hydraulic control unit displacement of either lever directs hydraulic pressure to the respective system. Upon completion of a system cycle, the handle _____. The _____ is used in case of a _____ malfunction to operate the landing gear and flaps. Emergency extension of landing gear is also accomplished by a _____ system.

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8. The fuel system consists of _____ tanks in each wing containing _____ gallons each. Either tank can be used for takeoffs or landings. The crossfeed is a _____system operated by the _____ . The fuel tank selectors and crossfeed control are located on a _____. The fuel gauges indicate _____ .
9. The Aztec has a _____ heating system with a thermostat control on the right instrument panel. The thermostat control has three switch positions labeled _____ . In order for the thermostat to function, the _____ , located on the _____ must be on.
10. Cabin heat is regulated by 4 push pull controls located at the bottom of the control pedestal. The left hand control regulates air flow to the _____ seat; the second control from the left regulates air flow to the _____ seat. The second control from the right is _____**.** The control on the far right regulates the _____.
11. The recommended loading procedure is to the load occupants from _____ to _____ progressively and observe _____ fuel weight limitations. Under the following conditions:

    a. 4 occupants – 2 in front, 2 in the middle: _____ .
    b. 5 occupants – 2 in front, 2 in the middle, 1 in the rear, and full fuel: _____. With two full tanks of fuel, then load the _____ baggage compartment first.
    c. 5 occupants – 1 in front, 2 in the middle, and 2 in the rear. This loading is permitted only with _____ .
    d. 6 occupants – 2 in front, 2 in the middle, and two in the rear. This loading is possible _____ . Load any baggage in the _____ compartment first.
12. With both _____ closed below _____ inches of manifold pressure with the gear up, the landing _____ .
13. A loss of engine oil pressure causes the propeller to _____ . The propeller must be feathered prior to _____ RPM otherwise a _____ keeps the propeller from feathering.

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14. Complete the chart and statement below assuming you have 160 pounds of baggage. Based on the completed chart below and the weight balance envelope **(last page of test)** which of the following is an allowable baggage load plan for the forward and rear baggage compartments.

    a. Forward/Rear: 160/0
    b. Forward/Rear: 0/160
    c. Forward/Rear: 100/60
    d. Forward/Rear: 60/100

ITEM	WEIGHT (#)	ARM	MOMENT
Basic Aircraft	**3158.53**	**89.77**	283541.24
Front Occupants	**390**	**89.0**	
Middle Occupants	**385**	**126.0**	
Rear Occupants	**300**	**157.0**	
Forward Baggage		**10.0**	
Rear Baggage		**183.0**	
Fuel		**113.0**	
T/O Weight & Balance			

15. After takeoff at maximum gross weight how long must you fly at 2200 RPM, 24 inches MAP, Normal Cruise Power Setting, before obtaining maximum landing weight _____ hours.

Using the following information plan a flight of 512 statute miles, make an approach, and then divert to an alternate 80 statute miles away:

a. Take-off at 1000' pressure altitude, 5200#,standard day temperature with 10 MPH headwind
b. Cruise using the Normal Cruise Power Setting (2400 RPM/26" MP) at a 8000 foot density altitude

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c. Cruise to the alternate using the same Normal Cruise Power Setting at a 5000 foot density altitude

16. Takeoff distance over 50 foot obstacle is _____ feet.
17. The accelerate dash stop distance is _____ feet.
18. The multi engine climb rate and airspeed (V_y) is _____ MPH and _____ FPM.
19. The single engine climb rate and airspeed (Vy_{se}) is _____ MPH and _____ FPM.
20. Elapsed time to the destination is _____ hours; total fuel burn is _____ gallons; Cruise true airspeed is _____ MPH.
21. The elapsed time to alternate is _____ hours; total fuel burn is _____ . gallons. Cruise true airspeed is ____ MPH. There is sufficient fuel remaining upon landing to satisfy MacAir Aero Club requirements. True _____ False _____
22. The stall speed at 4800 pounds, power off, aft CG, gear and flaps retracted is **71** MPH; with gear extended and flaps setting 50° is ____ MPH.
23. Landing distance over a 50 foot obstacle, 1000 foot pressure altitude at standard temperature, 4400 pounds with a 10 MPH headwind is _____ feet.
24. Describe the unfeathering procedure:
    - **a.** _____
    - **b.** _____
    - **c.** _____
    - **d.** _____
    - **e.** _____
    - **f.** _____
    - **g.** _____
    - **h.** _____
25. The single engine absolute ceiling with maximum obtainable power, standard temperature, and altitude, is _____ feet at _____ pounds.

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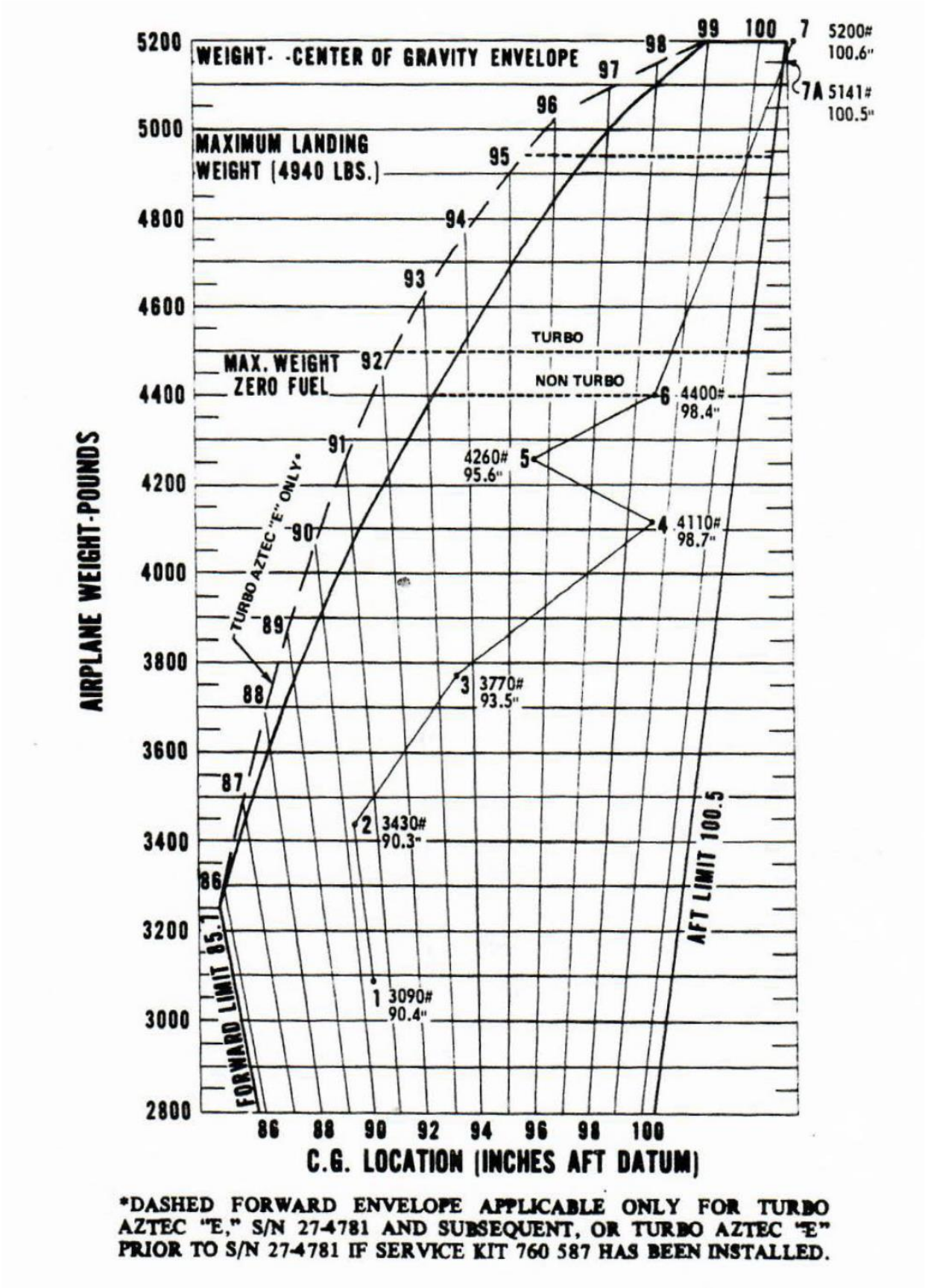

*DASHED FORWARD ENVELOPE APPLICABLE ONLY FOR TURBO AZTEC "E," S/N 27-4781 AND SUBSEQUENT, OR TURBO AZTEC "E" PRIOR TO S/N 27-4781 IF SERVICE KIT 760 587 HAS BEEN INSTALLED.