

AIRCRAFT QUESTIONNAIRE (OPEN BOOK)

GULFSTREAM AEROSPACE GA-7 COUGAR (1/08)

1. The maximum gross weight is _____ lbs; the maximum usable fuel is _____ lbs; an intermediate fuel loading is _____ lbs: and the maximum landing weight is _____ lbs.

- a. 3800; 708; 600; 3600
- b. 3800; 684; 480; 3800
- c. 3800; 684; 480; 3600

2. Ascertain the correct airspeeds (KIAS) for the safe operation of the aircraft at 3800 pounds:

<p>a.</p> <table border="0" style="width: 100%;"> <tr><td>V_{SO}</td><td>61</td></tr> <tr><td>V_{SI}</td><td>70</td></tr> <tr><td>V_R</td><td>70-75</td></tr> <tr><td>V_X</td><td>81</td></tr> <tr><td>V_Y</td><td>95</td></tr> <tr><td>Cruise Climb</td><td>100</td></tr> <tr><td>$V_{LO(RETRACT)}$</td><td>115</td></tr> <tr><td>V_{LE}</td><td>146</td></tr> <tr><td>$V_{A(MGW)}$</td><td>121</td></tr> <tr><td>$V_{A(3400 \#)}$</td><td>113</td></tr> <tr><td>$V_{FE (10 DEG)}$</td><td>146</td></tr> <tr><td>$V_{FE (30 DEG)}$</td><td>110</td></tr> <tr><td>V_{MCA}</td><td>59</td></tr> <tr><td>V_{YSE}</td><td>85</td></tr> <tr><td>$V_{YSE(3400 \#)}$</td><td>80</td></tr> <tr><td>SE App</td><td>90</td></tr> <tr><td>Max XC</td><td>15</td></tr> <tr><td>V_{NO}</td><td>162</td></tr> <tr><td>V_{NE}</td><td>191</td></tr> </table>	V_{SO}	61	V_{SI}	70	V_R	70-75	V_X	81	V_Y	95	Cruise Climb	100	$V_{LO(RETRACT)}$	115	V_{LE}	146	$V_{A(MGW)}$	121	$V_{A(3400 \#)}$	113	$V_{FE (10 DEG)}$	146	$V_{FE (30 DEG)}$	110	V_{MCA}	59	V_{YSE}	85	$V_{YSE(3400 \#)}$	80	SE App	90	Max XC	15	V_{NO}	162	V_{NE}	191	<p>b.</p> <table border="0" style="width: 100%;"> <tr><td>V_{SO}</td><td>61</td></tr> <tr><td>V_{SI}</td><td>70</td></tr> <tr><td>V_R</td><td>70-75</td></tr> <tr><td>V_X</td><td>81</td></tr> <tr><td>V_Y</td><td>95</td></tr> <tr><td>Cruise Climb</td><td>100</td></tr> <tr><td>$V_{LO(RETRACT)}$</td><td>115</td></tr> <tr><td>V_{LE}</td><td>145</td></tr> <tr><td>$V_{A(MGW)}$</td><td>120</td></tr> <tr><td>$V_{A(3400 \#)}$</td><td>113</td></tr> <tr><td>$V_{FE (10 DEG)}$</td><td>145</td></tr> <tr><td>$V_{FE (30 DEG)}$</td><td>110</td></tr> <tr><td>V_{MCA}</td><td>61</td></tr> <tr><td>V_{YSE}</td><td>85</td></tr> <tr><td>$V_{YSE(3400 \#)}$</td><td>80</td></tr> <tr><td>SE App</td><td>90</td></tr> <tr><td>Max XC</td><td>15</td></tr> <tr><td>V_{NO}</td><td>160</td></tr> <tr><td>V_{NE}</td><td>188</td></tr> </table>	V_{SO}	61	V_{SI}	70	V_R	70-75	V_X	81	V_Y	95	Cruise Climb	100	$V_{LO(RETRACT)}$	115	V_{LE}	145	$V_{A(MGW)}$	120	$V_{A(3400 \#)}$	113	$V_{FE (10 DEG)}$	145	$V_{FE (30 DEG)}$	110	V_{MCA}	61	V_{YSE}	85	$V_{YSE(3400 \#)}$	80	SE App	90	Max XC	15	V_{NO}	160	V_{NE}	188	<p>c.</p> <table border="0" style="width: 100%;"> <tr><td>V_{SO}</td><td>63</td></tr> <tr><td>V_{SI}</td><td>71</td></tr> <tr><td>V_R</td><td>70-75</td></tr> <tr><td>V_X</td><td>81</td></tr> <tr><td>V_Y</td><td>95</td></tr> <tr><td>Cruise Climb</td><td>100</td></tr> <tr><td>$V_{LO(RETRACT)}$</td><td>115</td></tr> <tr><td>V_{LE}</td><td>146</td></tr> <tr><td>$V_{A(MGW)}$</td><td>121</td></tr> <tr><td>$V_{A(3400 \#)}$</td><td>113</td></tr> <tr><td>$V_{FE (10 DEG)}$</td><td>146</td></tr> <tr><td>$V_{FE (30 DEG)}$</td><td>110</td></tr> <tr><td>V_{MCA}</td><td>59</td></tr> <tr><td>V_{YSE}</td><td>85</td></tr> <tr><td>$V_{YSE(3400 \#)}$</td><td>80</td></tr> <tr><td>SE App</td><td>90</td></tr> <tr><td>Max XC</td><td>17</td></tr> <tr><td>V_{NO}</td><td>162</td></tr> <tr><td>V_{NE}</td><td>191</td></tr> </table>	V_{SO}	63	V_{SI}	71	V_R	70-75	V_X	81	V_Y	95	Cruise Climb	100	$V_{LO(RETRACT)}$	115	V_{LE}	146	$V_{A(MGW)}$	121	$V_{A(3400 \#)}$	113	$V_{FE (10 DEG)}$	146	$V_{FE (30 DEG)}$	110	V_{MCA}	59	V_{YSE}	85	$V_{YSE(3400 \#)}$	80	SE App	90	Max XC	17	V_{NO}	162	V_{NE}	191
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3. The fuel system consists of two tanks in each wing containing _____ pounds of fuel; _____ pounds are usable. An electric fuel pump is provided in case of engine driven pump failure. The fuel selector has three positions: _____, _____, and _____.

- a. 354; 342; OFF, ON, CROSS FEED
- b. 708; 684; ON, OFF, CROSS FEED
- c. 354; 342; LEFT, RIGHT, OFF

4. The landing gear is a fully retractable tricycle system utilizing an electric powered hydraulic power pack. The landing gear are held down by _____ and held up by _____. The amber NOT SAFE light illuminates whenever the gear is _____ or _____. The emergency extension releases the _____ allowing the gear to free-fall.

- a. down locks; up locks; intransit; not down and locked; to the full down position
- b. down locks; hydraulic pressure; intransit; not down and locked; uplocks
- c. over center braces and lock pins; hydraulic pressure, intransit; piston locks

5. The landing gear warning horn actuates whenever the throttle is closed below _____ inches MAP and the landing gear is not down and locked or the wing flaps are extended beyond _____ degrees with the gear up.
 - a. 15; 11
 - b. 13; 11
 - c. 13; second notch

6. The wing flaps are _____ operated by a _____. The switch is _____ from the _____ to the _____ position and _____ position.
 - a. hydraulically; spring loaded; down; off; held in the up
 - b. electrically; spring loaded; down; neutral; held in the up
 - c. electrically; spring loaded; down; up; must be held in the up

7. The environmental system provides heating ventilating and defrosting to the cabin. The heating and defrosting systems obtain their air flow from a _____. _____ hot air valves control the temperature and volume of air.
 - a. exhaust mufflers; left and right
 - b. gas heater; left and right
 - c. gas heater; cabin and defrost

8. There are individual trim systems for the ailerons, elevator and rudder. Movement of each trim system control will reposition the aileron _____; elevator _____; and rudder _____.
 - a. tab; tab; tab;
 - b. itself; tab; itself
 - c. itself; tab; tab;

9. The gyros are part of a _____ system that consists of filters, regulators and a gauge.
 - a. pressure
 - b. vacuum
 - c. electric

10. The stall speed of a 3450 lbs. aircraft in a 20° bank, no flaps is:
 - a. 54
 - b. 55
 - c. 56

11. With an empty weight of 2678 pounds and a moment of 247,478 inch-pounds, include a full fuel load and 400 pounds of pilot and copilot. The aircraft center of gravity is at its:
 - a. forward limit
 - b. middle of envelope
 - c. aft limit

12. Complete the following:

	Weight (pounds)	Arm (inches)	Moment (in-lbs/1000)
Aircraft Basic Empty Weight	2678	96.14	257.478
Pilot & Copilot	400	91.0	36.4
Passenger(s)	170	128.0	21.76
Forward Baggage		26.0	
Aft Baggage	30	160.0	4.8
Zero Fuel Weight			
Fuel		112.0	
Ramp Weight			
Start, Taxi & Runup		112.0	
Take-Off Weight			

How much fuel is available for the flight?

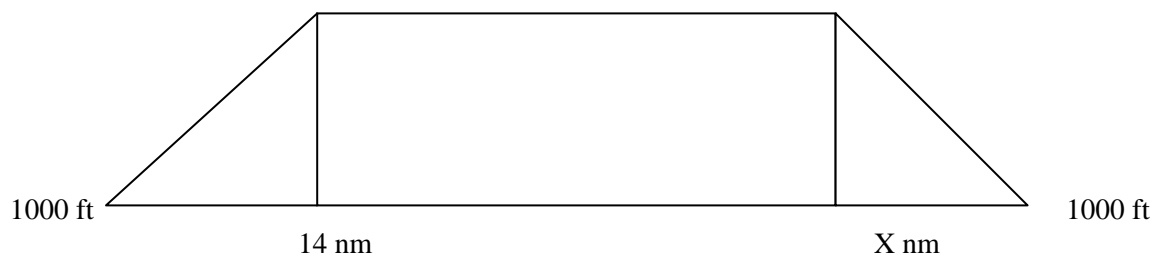
- 684 pounds
- 544 pounds
- 480 pounds

13. What is the take-off weight and arm?

- 3778 pounds; 99.75 inches
- 3800 pounds; 99.71 inches
- 3822 pounds; 99.78 inches

Using the following information, plan a flight of 510 nautical miles, make an approach, then direct to an alternate 80 nautical miles away.

- Use the information in question 12.
- Take-off at 1000 feet, OAT 25⁰ C with 10 knots headwind. Climb at 100 knots.
- Cruise at 8000 feet pressure altitude, standard temperature, 65 % power setting, leaned to best power. Destination airport is at 1000 feet pressure altitude, OAT 25⁰ C.
- Cruise to the alternate at 4000 pressure altitude, standard temperature, 65 % power setting, leaned to best economy. Alternate airport is at 1000 pressure altitude.



14. What is the time to the destination?

- 3+16 hours
- 3+20 hours
- 3+30 hours

15. How many miles are traveled during the descent?
- 38 nautical miles
 - 30 nautical miles
 - 25 nautical miles
16. What is the total fuel used to the destination?
- 360 pounds
 - 340 pounds
 - 320 pounds
17. What is the time to the alternate?
- 0+28 hours
 - 0+31 hours
 - 0+34 hours
18. Total fuel used to the alternate?
- 55 pounds
 - 58 pounds
 - 60 pounds
19. Is there sufficient fuel remaining at the alternate to satisfy Aero Club requirements?
- True
 - False
20. The normal procedure take-off distance over a 50 foot barrier for a 3450 pound aircraft, at 1000 feet pressure altitude, standard temperature, no wind is _____ feet; the lift off speed is _____ KIAS and the barrier speed is _____ KIAS.
- 2000; 71; 83
 - 2100; 71; 83
 - 2100; 72; 84
21. The maximum climb performance for a 3500 pound aircraft, at 1000 foot pressure altitude, 20⁰ C, with both engines operating is _____ feet per minute and with one engine inoperative is _____ feet per minute. The airspeed to achieve each of these rates is _____ KIAS and _____ KIAS respectfully.
- 790; 290; 100; 85
 - 1200; 220; 90; 85
 - 1220; 290; 92; 82

22. The single engine climb rate for a 3700 pound aircraft at 1000 feet pressure altitude, 25⁰ C is _____ feet per minute versus a cruise climb rate of _____ feet per minute. This represents a _____ percent lost of performance.
- a. 200; 660; 70
 - b. 200; 690; 71
 - c. 180; 690; 74
23. The normal landing distance for a 3400 pound aircraft, 1000 feet pressure altitude, 20⁰ C, with 10 knots of headwind, is _____ feet to clear the 50 foot obstacle with _____ feet of ground roll using a _____ KIAS approach speed.
- a. 1270; 778; 74
 - b. 1168; 716; 73
 - c. 1233; 660; 72

AIRCRAFT QUESTIONNAIRE (OPEN BOOK)
GULFSTREAM AEROSPACE GA-7 COUGAR (1/08)
ANSWERS

1. B
2. C
3. A
4. C
5. B
6. B
7. A
8. C
9. A
10. A
11. A
12. B
13. B
14. C
15. A
16. A
17. C
18. B
19. A
20. A
21. C
22. C
23. B