Ahart Aviation

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Ahart Aviation Seneca Checkout Test

Prepared for: Ahart Aviation Services
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Date: _____

Student/Customer Name: _____

(Please Print)

Engines

1. What is the rated horsepower for each engine?

   _____

2. At what power setting and RPM will you attain this rated horsepower?

   _____

3. Engine cowlings are equipped with cowl flaps for increased engine cooling. Under what engine conditions will you open the cowl flaps?

   _____

Propellers

1. Pitch of the propellers is controlled by engine oil and nitrogen pressure. Engine oil sends the propeller toward _____ RPM. Nitrogen pressure and a large spring sends the propeller towards _____RPM.
2. What pressure should the nitrogen dome in the propeller hub be charged to? _____
3. If nitrogen gas is unavailable, what may be substituted when charging is necessary?

   _____

4. What reaction would you expect from the operation of the propeller if the nitrogen charge in the propeller hub was insufficient?

   _____

5. If engine oil pressure were to drop to "0", what pitch setting would the propeller go to?

   _____

6. Will the propellers "feather" when parked on the ramp when the engines are not running? Why?

   _____

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7. While airborne, you wish to save an engine by feathering the propeller. To do so you must move the propeller control to the feather position before the RPM drops below _____
8. Approximately how long will the propeller take to feather? _____
9. What steps would you take to un-feather a propeller?

_____

Landing Gear

1. The landing gear is normally retracted by what source of power? _____
2. Approximately how long will it take for the landing gear to completely retract? _____
3. What keeps the landing gear in the retracted position?

_____

4. What alternate way do you have of lowering the landing gear?

_____

5. What is indicated by the illumination of the Red Gear Warning Light on the instrument panel?

_____

6. Other than the 3 green down light, what additional way can you determine that the landing gear is down and locked?

_____

7. What three conditions will activate the gear warning horn?

_____

_____

_____

8. What prevents the gear from inadvertent retraction should the gear selector be placed in the UP position when the aircraft is on the ground?

_____

9. Where may you obtain access to the landing gear pump and reservoir?

_____

10. In daylight, what would cause the green landing gear DOWN lights not to be illuminated to full intensity?

_____

11. Landing gear tires should be inflated to what pressure? Mains: _____ Nose: _____
12. At what speed may the gear be extended manually? _____

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Weight and Balance

1. What is the maximum weight capacity of the rear baggage compartment? _____
2. What is the maximum weight capacity of the forward baggage compartment? _____
3. Does fuel burn affect CG in this aircraft? Explain

   _____

4. Does gear movement affect CG? Explain.

   _____

5. Given the following information, determine the CG using weight and arm values.

Station	Arm	Weight
Basic Empty Weight	82	2625
Useful Load		1575
Pilot Weight	85.5	200
Front Passenger Weight	85.5	180
Rear Passenger Weight	155.7	160
Baggage/Cargo (Rear)	178.7	75
Baggage/Cargo (Front)	22.5	20
Fuel	103	93 Gallons

   5.1. What is the gross weight of the aircraft? _____
   5.2. What is the center of gravity? _____
   5.3. What is the moment? _____

Fuel System

1. The Seneca has how many fuel cells? _____
2. What is the minimum octane fuel the plane can use? _____
3. Normally, fuel is supplied to the engines using the engine driven fuel pumps. What backup feature is available if either of these become inoperative?

   _____

4. What indications would you expect to see if an engine driven fuel pump were to fail?

   _____

5. For the following conditions, describe how you would position the fuel selectors and electric fuel pump switches:
   5.1. Tank to engine (normal cruise flight). _____
   5.2. Left engine inoperative, tank to engine. _____
   5.3. Left engine inoperative, additional fuel needed for increased range or to compensate for fuel imbalance. _____
6. If both the right engine driven fuel pump and the right electric fuel pump became inoperative, what would most likely result?

   _____
7. Other than for an emergency condition, the electric fuel pumps should be ON during what phases of flight?

   _____
8. How many fuel drains are available to check for fuel contamination during preflight and where are they located?

   _____

Takeoff Performance

1. Given the following conditions at gross weight, please answer the questions below.

	Livermore Airport (KLVK)	South Lake Tahoe (KTVL)
Temperature	38 C	28 C
Headwind	5 Knots	5 Knots
Elevation	_____	_____

   1.1. What is the normal procedure Accelerate and stop distance at both airports?
   KVLK: _____ KTVL: _____
   1.2. What is the Short Field Accelerate and Stop Distance at both airports?
   KVLK: _____ KTVL: _____
   1.3. What is the normal procedure takeoff ground roll at both airports?
   KVLK: _____ KTVL: _____
   1.4. What is the short field takeoff distance over 50 foot obstacle at both airports?
   KVLK: _____ KTVL: _____
   1.5. Given the temperature at KTVL, would you take off safely? If not, explain why.

   _____

1.6. If you could takeoff, explain what performance chart you would use to determine performance. List ground roll, lift off speed, and climb performance gear up and down (both engines working) as well as gear up (single engine operating only).

_____

_____

Ground Roll:_____, Lift Off Speed: _____

Climb Perf. Gear Up:_____, Climb Perf. Gear Down: _____

Climb Perf. Gear Up Single Engine:_____

Electrical System

1. The electrical system is powered by what primary source?

   _____

2. What is the alternate or backup electrical power source?

   _____

3. What is the capacity and voltage of the aircraft battery?

   _____

4. What is the capacity of each alternator (in ampere-hours)?

   _____

5. If the alternator output exceeds approximately 17 volts, what would normally result?

   _____

6. Two voltage regulators maintain effective load sharing between both alternators while regulating electrical buss voltage. What is this voltage? _____
7. Approximately, what RPM is required to obtain full alternator output? _____
8. What is indicated by the illumination of the ALT annunciator light??

   _____

9. What is indicated if a significant reading remains on the ammeters after all the electrical equipment (except the master switch) is turned off?

   _____

10. What will normally result if an electrical unit powered by the main electrical buss were to experience a sudden surge of current, an electrical short circuit, or an electrical malfunction?

    _____

    10.1. Can the failed system or unit be restored? _____

    10.2. How can it be restored if it can be restored??

    _____

11. The ammeter for the left alternator reads “0”. What may be done to return this alternator to normal operation?

    _____

12. How many times should the alternator circuit breaker be reset and why?

    _____

Vacuum System

1. The vacuum system operates what instrument(s) in the aircraft?

   _____

2. The vacuum pressure system is regulated to provide vacuum pressure between what values?

   _____

3. How could vacuum pressure be increased if below normal values?

   _____

4. Will the capacity of the vacuum system be insufficient if one of the vacuum pumps were to fail? Explain why.

   _____

Pitot/Static System

1. What instruments are operated by the Pitot Tube?

   _____

2. What instruments are operated by the static port?

   _____

3. Where does the alternate static source get its air?

   _____

4. What error would you expect to see when using the alternate static source?

   _____

5. The pitot heat should not be left on for longer than what time period before takeoff or landing?

   _____

6. Is pitot heat a de-icing or an anti-icing device?

   _____

7. If incorrect airspeed readings are being displayed during flight and there is no icing in or on the pitot tube, what could be the causes?

   _____

Heat, Ventilation and Defrosting Systems

1. Heated air for the cabin and windshield defrosting is provided by what source?

   _____

2. Will the ventilation blower operate during flight?

   _____

3. How can the heating system be used to ventilate the cabin when heat is not desired?

   _____

Emergency Exit

1. Where is the emergency exit located? _____
2. How is the emergency exit operated?

_____

Cruise Performance

1. Given the following details, please answer the questions
   - Altitude: 9,500 feet
   - Temperature: Standard
   - Power Setting: 55%

   1.1. What is the fuel burn per hour? Best Power:_____, Best Economy:_____
   1.2. What is the leaning procedure?
   Best Power: _____
   Best Economy: _____
   1.3. What is the cruise range with a 45 minute fuel reserve?
   Best Power: _____
   Best Economy: _____
   1.4. What is the cruise endurance with a 45 minute fuel reserve?
   Best Power: _____
   Best Economy: _____

Landing Performance

1. Given the following details, please answer the questions
   - Temperature: KVLK: 38C, KTVL: 28C
   - Wind Component: 5 knots at both KLVK and KTVL
   - Aircraft Weight: 3900 pounds

   1.1. What is the landing ground roll?
   KLVK: _____, KTVL: _____
   1.2. What is the landing distance over a 50 foot obstacle?
   KLVK: _____, KTVL: _____
   1.3. What is the approach speed?
   KLVK: _____, KTVL: _____

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Emergency Procedures

1. During single engine operations, when Vmc is reached, what is the recovery procedure?

_____
_____
_____
_____

2. What is the stall recovery procedure?

_____
_____
_____
_____

3. What is the procedure to identify then secure a failed engine in flight?

_____
_____
_____
_____

4. What is the engine restart procedure during flight?

_____
_____
_____
_____

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Aircraft Details

1. Fill in the following values

Vso	_____	Total Fuel Capacity	_____
Vmc	_____	Total Usable Fuel	_____
Vs1	_____	Minimum Fuel Grade	_____
Vsse	_____	Minimum Oil Capacity	_____
Vx	_____	Maximum Oil Capacity	_____
Vxse	_____	Normal Oil Capacity	_____
Vy	_____	Oil Viscosity	_____
Vyse	_____	Max Ramp Weight	_____
Vlo (up)	_____	Max Takeoff Weight	_____
Vlo (down)	_____	Max Landing Weight	_____
Vfe	_____	Max Rear Baggage Wt	_____
Vno	_____	Vacuum Min/Max	_____ / _____
Va	4200 lbs:_____ 2743 lbs:_____	Maximum Demon-strated Cross Wind	_____

CFI Name: _____

(Please Print)

CFI Signature: _____