

# AIRCRAFT QUESTIONNAIRE SINGLE ENGINE (JUL 03)

This open-book questionnaire covers the Piper single engine airplanes. If the airplane systems are similar, only one question is ask, but there may be answer spaces for each airplane. If a certain question fits only one airplane, they will be asked separately. Give answers for all the airplanes you fly.

Name \_\_\_\_\_ Date \_\_\_\_\_ Grade \_\_\_\_\_ Instructor \_\_\_\_\_

**PART 1 ALL AIRPLANES:**

- |  |                            |                          |                           |
|--|----------------------------|--------------------------|---------------------------|
| <p>1. The fuel specified for the aircraft is 100 low lead. What what octane fuel can be used as an alternate?</p>    | <p>Warrior/<br/>Archer</p> | <p>_____ Arrow _____</p> |                           |
| <p>2. What is the fuel capacity (in gallons)?</p>  | <p>Warrior/<br/>Archer</p> | <p>_____ Arrow _____</p> |                           |
| <p>3. How many gallons are useable?</p>  | <p>Warrior/<br/>Archer</p> | <p>_____ Arrow _____</p> |                           |
| <p>4. What is the oil capacity (in quarts)? Aero club rules require oil to be added when more than on quart low.</p> | <p>Warrior/<br/>Archer</p> | <p>_____ Arrow _____</p> |                           |
| <p>5. At what flap setting dose the right flap serve as a step? Caution your passengers!</p>                         |                            |                          | <p>_____</p>              |
| <p>5a. Describe the flight control positions for taxiing with a wind from the right rear.</p>                        |                            |                          | <p>_____</p> <p>_____</p> |

**SPEEDS: WHAT IS THE INDICATED AIRSPEED FOR:**

- |   |         |              |             |       |
|---|---------|--------------|-------------|-------|
| 6. Vy (at maximum gross weight)/          | Warrior | _____ Archer | _____ Arrow | _____ |
| 7. Va (at 700 lbs below max gross weight) | Warrior | _____ Archer | _____ Arrow | _____ |
| 8. Best Glide                             | Warrior | _____ Archer | _____ Arrow | _____ |
| 9. Enroute Climb                          | Warrior | _____ Archer | _____ Arrow | _____ |

**SPEEDS: TAKE OFF PERFORMANCE PROBLEM:**

Assume: (dry/level/paved) Weight 200 lbs below maximum. Temp 70 degrees F. Pressure altitude 4,000 ft. Ten knot headwind Flaps set for shortest takeoff distance. For heaviest airplane you fly, find.

- |   |         |              |             |       |
|---|---------|--------------|-------------|-------|
| 10. What flap setting results in the shortest ground roll and distance over a 50' obstacle? | Warrior | _____ Archer | _____ Arrow | _____ |
|---|---------|--------------|-------------|-------|

Questions 11 - 14 use Warrior and weight 2125

- |                                      |         |       |
|--------------------------------------|---------|-------|
| 11. Minimum ground roll              | Warrior | _____ |
| 12. Distance to clear a 50' obstacle | Warrior | _____ |
| 3. Liftoff speed                     | Warrior | _____ |
| 4. Speed at 50 feet ( with flaps)    | Warrior | _____ |

**CRUISE PERFORMANCE PROBLEM:**

Assume: You wish to cruise at 8,000 ft at 75% best power. Outside temperature is 0 degrees C. There is a 30 kt headwind. For the heaviest airplane you plan to fly, find:

- |   |         |              |             |       |
|---|---------|--------------|-------------|-------|
| 5. Power setting (RPM or Manifold Pressure) | Warrior | _____ Archer | _____ Arrow | _____ |
| 6. True airspeed.                           | Warrior | _____ Archer | _____ Arrow | _____ |

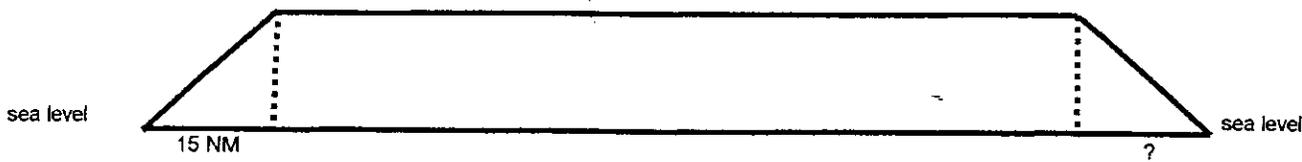
17. Fuel consumption (GPH) Warrior \_\_\_\_\_ Archer \_\_\_\_\_ Arrow \_\_\_\_\_

18. What is the maximum cross country range you can achieve using the following assumptions?

- a. Both takeoff and destinations are sea level
- b. Fuel consumption is 10 gallons/per hour
- c. For climb use 3 gallons / distance 15 miles
- d. TAS use question 16

FOR WARRIOR, AS  
ABSOLUTE FOR 181/20

NOTE: Use the POH decent chart to compute your decent to the destination airport



19. What is the leaning procedure for best power performance if there is no exhaust temperature gauge.

WARRIOR Carbureted Engine: \_\_\_\_\_

ARROW Fuel Injected Engine: \_\_\_\_\_

ARCHER CARB. ENGINE: \_\_\_\_\_

20. What is the maximum power setting permissible for leaning the engine during cruise? Local training flights will be flown with mixture FULL RICH.

**LANDING PERFORMANCE PROBLEM:**

Assume: You are landing at an airport whose altitude is 4,000 MSL. There is a 50' crane on the approach end of the runway. Temp is 60 degrees F. Aircraft is 400 lbs below max. 5kt tailwind.

21. For the heaviest airplane you plan to fly, what is the minimum distance to land?

Airplane type \_\_\_\_\_ Weight \_\_\_\_\_ Distance \_\_\_\_\_

22. What is your airspeed on final approach. (40 degrees of flaps 0?)

\_\_\_\_\_

**WEIGHT AND BALANCE PROBLEM:**

Compute the Warrior weight (use max gross weight of 2325 old warrior) and balance if you are flying the Warrior and Archer. Compute the Arrow weight and balance if you are flying the Arrow.

Use forms on page 4 for your computations

	<u>WARRIOR</u>	<u>ARROW</u>
EMPTY WEIGHT Lbs Moment (in lbs)	1459/125818	1769/154870
Pilot and Front Passenger	320	350
Rear Seat Passenger	155	225
Baggage	200	125
Total fuel on board in gallons	34	50

23. What is the gross weight of the aircraft?

\_\_\_\_\_

24. What is the total moment of the loaded aircraft?

\_\_\_\_\_

25. Where is the CG for the loaded aircraft located?

\_\_\_\_\_

26. Is the aircraft loaded within limits?

\_\_\_\_\_

27. If the aircraft is not within limits, what can you do to bring it within limits?

\_\_\_\_\_

28. Assume you remove 25 lbs from the baggage compartment and you fly for 2+20 hours (Warrior fuel burn 8.7 Arrow fuel burn 12 GPH) What is your

landing weight and where is the CG located?

\_\_\_\_\_

**PART 2 WARRIOR ONLY**

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29. What is the maximum baggage compartment load in normal category?

\_\_\_\_\_

30. During a full throttle, static ground run-up, the engine should run smoothly and turn at approximately what RPM?

\_\_\_\_\_

**PART 3 ARROW ONLY**

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31. What is the maximum speed to retract the landing gear?

\_\_\_\_\_

32. What is the maximum speed to extend the landing gear?

\_\_\_\_\_

33. What is the function of the landing gear override?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

34. How do you engage the override?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

35. What warns you the override is engaged?

\_\_\_\_\_  
\_\_\_\_\_

36. At full power, below what speed does the gear automatically extend?

**WARNING:** You can fool the auto extender by approaching low with power added. Double check the override is disengaged and the gear us down when on downwind and final.

\_\_\_\_\_

37. What do you have to do to get the landing gear to retract while climbing at  $V_x$  just after take off?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

38. What differentiates N8229Y from N8395Y?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

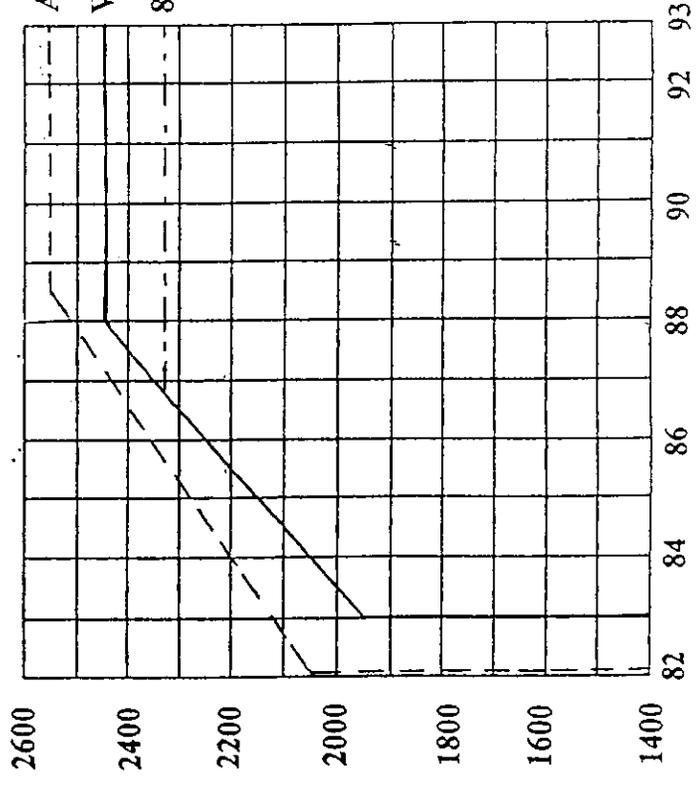
39. The three green "gear down and locked" lights will dim when which lights are turned on?

\_\_\_\_\_

# VVANNIUM/ARKUHEK

	WEIGHT	ARM	MOMENT
EMPTY WEIGHT			
PILOT & PAX	80.5		
AFT PAX	118.1		
BAGGAGE	142.8		
ZERO FUEL WT.			
FUEL @ 6 # GAL.	95.0		
TAKEOFF WT.			
FUEL USED			
LANDING WT.			

ARCHER  
WARRIOR  
8057P & 8115



ARCHAFT WEIGHT

# ARRROW

	WEIGHT	ARM	MOMENT
EMPTY WEIGHT			
PILOT & PAX	80.5		
AFT PAX	118.1		
BAGGAGE	142.8		
ZERO FUEL WT.			
FUEL @ 6# GAL.	95.0		
GEAR RETRACT MOMENT			819.0
TAKEOFF WT.			
FUEL USED			
LANDING WT.			

Aircraft Weight

