

## WCFC Piper PA28 Warrior Quiz

Review before : 2025-10-11 Quiz ID : **16226** 

Instructor :		Date :
Pilot :	Member # :	Score :

**Instructor :** Please note the final score (subtract 3.0 points from 100 for each wrong answer) on the checkout form and file the quiz in the Pilot Records folder.

- 1: The engine in a PA-28-161 is a
- A: Continental O-300
- B: Lycoming O-320
- C: Lycoming O-235
- D: Lycoming O-540
- <sup>2</sup>: When the ESP system that is an integral part of the G5 and the GFC 500 AFCS has been engaged for more than 10 seconds (cumulative; not necessarily consecutive seconds) of a 20-second interval, what happens?
- A: A warning alert "Pitch down" is heard.
- B : Flight controls are locked for five seconds to prevent further excursions in pitch and bank
- C : The autopilot is immediately disengaged, returning control to the pilot for safety.
- D : The autopilot engages in Level (LVL) mode
- E : The ESP system disengages to prevent over-driving the pitch and roll servos.

<sup>3</sup>: The usable capacity of the fuel tanks (fully fueled) in a PA-28-161 aircraft is

- A: 38 US gallons
- B: 48 US gallons
- C: 50 US gallons
- D: 50 Imperial gallons

- <sup>4</sup>: In the combination G5 and G500 autopilot installed in the WCFC PA28.161 Warriors, once engaged, the torque applied by ESP is at its maximum when bank angle ...
- A : exceeds a prudent bank angle for more than 5 seconds
- B : exceeds a roll rate of 45 degrees per second
- C : is accompanied by a loss or gain of more than 175 feet of altitude
- D : is 15 degrees more than the configured bank limit.
- E : the trim malfunctions and produces a runaway condition requiring immediate disabling of the electric trim
- <sup>5</sup>: The rated power of the engine as installed in a PA-28-161 is
- A : 100 BHP
- B: 125 BHP
- C: 150 BHP
- D: 160 BHP
- <sup>6</sup>: According to this representation of the G5 is Electronic Stability Protection enabled or disabled?



- A : Disengaged
- B : Enabled
- C : Disabled
- D : Standby

- 7: The PA28-161 is NOT approved for intentional spins. Not in any category or for any reason. What is the recommended recovery for an unintentional or accidental spin?
- A : Throttle -- idleAilerons -- neutralRudder -- neutralControl wheel -- full forwardRudder and ailerons -- opposite direction of rotationControl wheel -- as required to smoothly regain level flight altitude
- B : Throttle idleAilerons -- neutralRudder -- full opposite to direction of rotationControl wheel -- full forward Rudder -- neutral when rotation stopsControl wheel -- as required to smoothly regain level flight altitude
- C : Throttle -- idleAilerons -- opposite direction of rotationRudder -- neutralControl wheel -- full forwardControl wheel -- as required to smoothly regain level flight altitude
- D : Throttle -- idleAilerons -- to arrest bank angle and regain wings level flightRudder -- in coordination with ailerons to avoid cross-controlled flightControl wheel -- As required to regain level flight altitude
- <sup>8</sup>: The correct type of fuel for the PA-28-161 (excepting any special STC) is
- A : Aviation 80, 100LL, or 100/130 fuel
- B: Automotive high test
- C: Aviation 100LL or 100/130 fuel (100LL preferred)
- D : Aviation 100LL (light blue) fuel only
- 9: This Garmin G5, configured as an attitude indicator, indicates that the airplane is ...

Ground Pointer-



- A : banked 20 degrees left
- B : banked 20 degrees right
- C : climbing
- D : descending

- <sup>10</sup>: According to the Warrior AFM/POH, engine fires during starting are usually caused by...
- A : cranking the starter excessively, thus flooding the engine
- B : priming with the auxiliary boost pump
- $\ensuremath{\mathsf{C}}$  : attempting to start the engine with the magnetos energized
- D : over-priming
- E : allowing fuel to vaporize on a hot day
- <sup>11</sup>: Using the correct Engine Performance Chart, what is the highest altitude at which we can achieve 65% power using 2500 RPM at Standard Temperature? (Use N8080A AFM/POH) (Choose the closest answer.)
  - Assume:
  - 2325 Gross weight
  - Wheel fairings installed
  - 8.8 gph
- A: 8300 feet pressure altitude
- B: 4,000 feet pressure altitude
- C: 6000 feet pressure altitude
- D: 7100 feet pressure altitude
- <sup>12</sup>: Calculate the weight, CG, and total moment of N8080A using the data below. Choose the correct answer.

item	weight (pounds)	CG (arm)	Moment (/1000)
Airplane (80A)	1521.5	86.99	132.36
Front seat	220	80.5	17.71
Rear Seat	340	118.1	40.15
Fuel (pounds)	204	95.0	19.38
Baggage	100	142.8	14.28
Totals			

- A: Totals | 2385.5 | 90.23 | 223.88 |
- B: Totals | 2385.5 | 92.86 | 221.51 |
- C: Totals | 2585.5 | 93.86 | 242.67 |
- D: Totals | 2385.5 | 93.86 | 223.88 |

13: This G5 is configured with a ...



- A: sky pointer
- B : ground pointer
- <sup>14</sup>: The maximum gross takeoff weight for the CHFC PA-28-161 aircraft is
- A: 2000 pounds
- B: 2325 pounds
- C: 2350 pounds
- D: 2440 pounds
- <sup>15</sup>: What does STC SA00397NY, installed in some of the WCFC Warrior fleet, change about a PA28-161.
- A : This STC approves the Garmin G5 electronic instrument to serve as the primary attitude indicator and fully replace the original vacuum-powered instrument.
- B : The STC allows the installation of a smaller-diameter nose wheel to reduce the angle of attack on the takeoff roll and reduce the tendency to lift off prematurely in ground effect.
- C : The STC grants permission to operate that serial number airplane at a maximum gross weight of 2440 pounds rather than the original 2325 pounds.
- D : The STC allows the relocation of the battery from the firewall to an alternate location beneath the rear seat, which moves the CG aft (but within limits) to reduce drag and improve speed, fuel efficiency, and range.

- <sup>16</sup>: The type of oil normally in the engine should be ...
- A: SAE rated SE (severe environment) multi-viscosity
- B : Aviation grade ashless dispersant (AD) of appropriate viscosity
- C : High quality automotive type high detergent (HD) motor oil
- D : Aviation grade "straight mineral oil"
- E : Aviation grade multi-viscosity synthetic oil
- <sup>17</sup>: Best angle-of-climb speed for the PA-28-161 at gross weight at sea level is:
- A : 52 KIAS
- B : 63 KIAS
- C: 79 KIAS
- D : Both (a) and (b) with and without flaps respectively
- <sup>18</sup>: Using the Performance Charts of the AFM/POH for N8080A, serial number 18-8016051, the true airspeed in cruise will be \_\_\_\_\_\_ under the following conditions ... (Use the original maximum gross weight of 2325 pounds.)

Condition	Data
Cruise Pressure Altitude	8,000 feet
OAT at cruise altitude	15 Celsius
Cruise Power	65% best power
Wheel fairings	not installed
Gross weight	2325 pounds

<sup>19</sup>: What would be a minimally inconvenient loading change that would suffice to make this aircraft legally flyable?

item	weight	CG (arm)	Moment (/1000)
Airplane (80A)	1521.5	86.99	132.36
Front seat	220	80.5	17.71
Rear Seat	340	118.1	40.15
Fuel (pounds)	204	95.0	19.38
Baggage	100	142.8	14.28
Totals	2385.5	93.86	223.88

- A : No change is necessary.Leave 50 lbs of baggage behind.
- B : Leave 50 lbs of baggage behind.
- C : Offload at least one passenger.
- D : Have the kid and one 170 lb passenger exchange seats.
- E: 2385.5 | 93.86 | 223.88
- <sup>20</sup>: Using the Performance Charts of the AFM/POH for N8080A, serial number 18-8016051, the true airspeed in cruise will be \_\_\_\_\_\_ under the following conditions ... (Use the original maximum gross weight of 2325 pounds.)

Condition	Data	
Cruise Pressure Altitude	8,000 feet	
OAT at cruise altitude	15 Celsius	
Cruise Power	65% best power	
Wheel fairings	not installed	
Gross weight	2325 pounds	

<sup>21</sup>: Calculate the Weight and Balance for NWCFC1, a fictional PA28 with the following characteristics. What is the total weight, the CG, and is it, as loaded, within the weight and balance limits?

Item	Weight	Arm
Basic Empty Weight	1470 pounds	85 inches
Fuel	34 gallons	95
Pilot and front passenger	355 pounds	80.5
Rear seat passengers	230 pounds	118.1
Baggage Area	20 pounds	142.8

- A: Weight 2259CG 91.39Yes, within limits
- B: Weight 2279CG 90.58Yes, within limits
- C : Weight 2279CG 87.4Yes, within limits

22 :

- To achieve 65% power at 10,000 feet pressure altitude with an OAT of 20F requires what RPM setting? Assume best power mixture, leaned as indicated, and indicated fuel flow.
- Note that due to the inherent imprecision of these charts, choose the closest answer to your conclusion.
- A: 2620 RPM
- B: 2400 RPM
- C: 2720 RPM
- D: 2580 RPM
- E: 2320 RPM

<sup>23</sup>: The following numbers refer to the various sources of information in the standard G5 PFD presentation as installed in the Club Warriors and integrated with the G500 Garmin autopilot. Consult the diagram and refer to the numbered items. Please fill in the blanks.
#15 is the \_\_\_\_\_\_. #17 is the \_\_\_\_\_\_. #14 is the



- <sup>24</sup>: Calculate the climb performance (feet per minute) of a Club Warrior at a pressure altitude of 8,000 feet based on the following assumptions:
  - Pressure altitude = 8,000 feet
  - Indicated airspeed = 79 knots
  - Full throttle
  - OAT = 20F
  - Leaned per Lycoming Instructions
  - Wheel pants removed
  - Weight = 2325 pounds (original max gross without the STC)
  - NOTE: These calculations based on N64TZ. Others should be similar. Answers will not be precise given the imprecision of these charts. Choose the closest answer.
- A: 240 feet per minute, approximately
- B: 380 feet per minute, approximately
- C: 210 feet per minute, approximately
- D: 340 feet per minute, approximately
- <sup>25 :</sup> What is the longest VFR flight (hours and minutes) that the WCFC SOPs allow to be planned for a PA-28-161 with fuel to the tabs under VFR?
  - For private pilots?
  - For student pilots?
  - NOTE
  - Fueled to tabs, the PA28-161 Warrior II carries 34 gallons of usable fuel
  - Use Figure 5-16 from page 5-22 for fuel consumption.
  - Assume Best Power mixture and fuel flow at 65%
- A : 3.86 private pilot, 1:93 student pilot
- B: 2:51 private pilot, 1:08 student pilot
- C: 2:86 private pilot, 1:19 student pilot
- D: 3:00 private pilot, 1:19 student pilot

- <sup>26</sup>: Calculate the fuel (gph), time (??:??), and distance (NM) to climb the PA28 from a departure airport to a cruise altitude based on the following pressure altitudes, temperatures, and fuel burn. Climb will be full throttle at 79 KIAS.
  - Departure airport: 2,000 feet pressure altitude, OAT 80F
  - Cruise altitude: 10,000 feet pressure altitude, OAT 40F
  - As always with these charts, there is some imprecision, so choose the closest answer to your result
- A: 4 gallons, 25 minutes, 15 NM
- B: 5 gallons, 45 minutes, 50 NM
- C: 10 gallons, 45 minutes, 50 NM
- D: 4 gallons, 23 minutes, 36 NM
- <sup>27</sup>: What would be the required fuel flow per hour and RPM setting to achieve 65% power at these parameters? (Use N8080A for performance calculations.)
  - NOTE:
  - Fuel to tabs (34 gallons usable)
  - Wheel fairings installed
  - Max Gross Weight 2325 pounds
  - Best power mixture setting
  - 65% power
  - 8000 foot pressure altitude
  - OAT (at altitude) 40F
- A: 8.8 gph, 2530 RPM
- B: 10 gph, 2530 RPM
- C: 7.8 gph, 2580 RPM
- D: 7.5 gph, 2600 RPM
- <sup>28</sup>: At 2000 pounds total weight, a reasonable approximate maneuvering speed for the PA-28-161 is
- A : 76 KIAS
- B : 88 KIAS
- C: 102 KIAS
- D : 111 KIAS

- <sup>29</sup>: The active and armed modes, lateral and vertical, of the autopilot are displayed where?
- A : Active modes are displayed on the HSI function of the installed G5
- B : There is no separate display. The modes are recognized from the GFC 507 mode buttons, which turn red when engaged.
- C : Adjacent to the GFC 507 AFCS in the GFC 500 screen
- D : Autopilot (AP) status is displayed in the middle of the G5 Autopilot Status Box.
- E : The autopilot (AP) modes may be displayed externally on an Ipad linked via Bluetooth to the GFC 500 AFCS system.
- <sup>30</sup>: At a cruise OAT of 40 degrees F, what would be the highest pressure altitude at which we can achieve 75% power according to the performance charts and abiding by the stated configurations and parameters?
- A: Approximately 5000 feet
- B: Approximately 6000 feet
- C: Approximately 7000 feet
- D: Approximately 8000 feet
- E : Any altitude lower than 10,000 feet