WCFC Piper PA28 Warrior Quiz

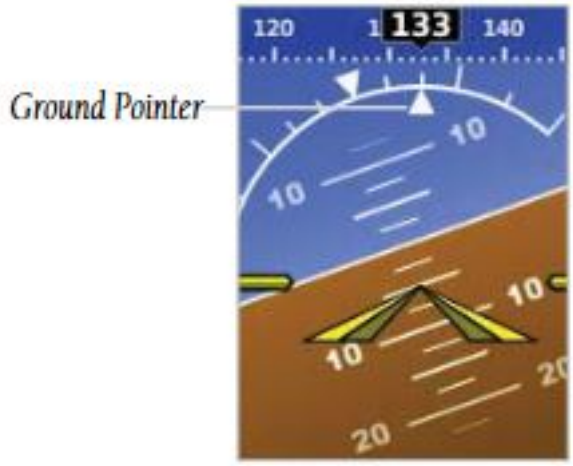
Review before : 2027-02-10
Quiz ID : **27494**

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.

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1 : This Garmin G5, configured as an attitude indicator, indicates that the airplane is ...



A : banked 20 degrees left

B : banked 20 degrees right

C : climbing

D : descending

2 : 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

3 : 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

4 : What is the maximum speed at which the GFC500 autopilot may be engaged in the WCFC PA28 airplanes, according to its limitations?

A : 65 IAS

B : 111 IAS

C : 126 IAS

D : 140 IAS

E : 160 IAS

5 : 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

C : attempting to start the engine with the magnetos energized

D : over-priming

E : allowing fuel to vaporize on a hot day

6 : 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.

7 : 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

8 : 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

9 : The Garmin G5 configured as a PFD (Primary Flight Display) includes much information in addition to its role as an attitude indicator. Please identify the role of each of the symbols and numbers identified by number in the diagram below.Number 11 is the _____. Number 7 is the _____. Number 24 is the _____. Number 5 is the _____. Number 15 is the _____.



10 : According to this representation of the G5 is Electronic Stability Protection enabled or disabled?



A : Disengaged

B : Enabled

C : Disabled

D : Standby

11 : 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

12 : 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

13 : 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.

14 : When effecting a start with an external power source, the master switch should normally be ... and the electronics should normally ...

A : master on ... electronics on

B : off... electronics on

C : off...electronics off

D : on until engine start...electronics off

E : off unless battery voltage is at least 12.5 volts...electronics off

15 : 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 |

16 : 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

17 : 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

18 : What is the most current CG (Center of Gravity) in the WCFC record for N64TZ?

19 : The normal operating range in KIAS represented by the green arc on the airspeed indicator is:

A : 126-160 KIAS

B : 44-103 KIAS

C : 50-126 KIAS

D : below 160 KIAS

20 : What would be the calculated cruise speed (True Airspeed) using the parameters below? (Use N8080A for performance calculations.)

- *NOTE:*

- Fuel to tabs (34 gallons usable)

- Wheel fairings not installed

- Max Gross Weight 2325 pounds

- Best power mixture setting

- 65% power

- 8000 foot pressure altitude

- OAT (at altitude) 40F

A : 122 knots TAS

B : 111 knots TAS

C : 113 knots TAS

D : 106 knots TAS

21 : 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

22 : If we suspect a total loss of alternator output in the PA28-161 electrical system, how can we determine if the output is a total loss of the alternator or merely a low demand on the system?

A : Pull the alternator field circuit breaker to check for an increased reading on the ammeter

B : Check the ammeter for a reading below zero that would indicate a failure and a battery discharge.

C : Check the voltmeter for voltage of at least 14 volts, required for normal operation of the 12-volt system.

D : Activate an electrically-powered system, such as the landing light, and if the ammeter does not respond, the alternator can be assumed to have failed.

23 : 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

24 : The type of oil normally in the engine should be ...

A : SAE rated SE (severe environment) multi-viscosity

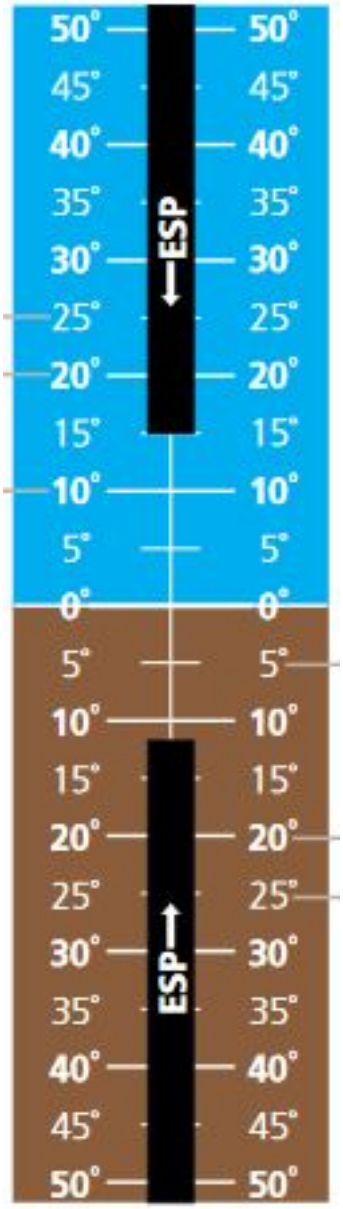
B : Aviation grade ashless dispersant (AD) of appropriate viscosity

C : High quality automotive type high detergent (HD) motor oil

D : Aviation grade "straight mineral oil"

E : Aviation grade multi-viscosity synthetic oil

25 : The Garmin G500 autopilot in the WCFC PA28 Warriors incorporates an ESP function. Working in concert with the G5 attitude indicator, the ESP system discourages flight outside of configurable pitch and bank postures. If the configurable pitch limits, up and down, are both set to 20 degrees of pitch, the maximum torque applied by the ESP system will occur at what pitch levels?



A : when the pilot attempts to override the pitch limits

B : 20 degrees pitch up and 20 degrees pitch down

C : 25 degrees pitch up and 25 degrees pitch down

D : 15 degrees pitch up and 25 degrees down

E : 15 degrees pitch up and 15 degrees down

26 : 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

27 : 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 _____. #19 is the _____ #20 is the _____.



28 : 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.

29 : Given the following loadings, are the Normal category weight and balance limitations met for a typical CHFC Warrior? Use the N8080A AFM/POH Weight and Balance charts.
- For this calculation, please use these numbers for N8080A c. February 2001.
- Basic empty weight = 1521.5 pounds. CG = 86.99)
- Front seats: 150 lb pilot and 70 lb child passenger
- Rear seats: two 170 lb passengers
- Fuel: fueled to tabs
- Baggage: 100 lbs

This information in tabular format:

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	------	------	----------

A : The weight is within STC limits, but the CG is too far aft.

B : No. The weight is within STC limits, but the CG is too far forward.

C : Yes. Both weight and CG are within STC limits.

D : No. This airplane is over the STC maximum gross weight.

E : Yes. But the CG is near the front limit.

30 : 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