

Wings of Carolina Flying Club
PA-28-161 Aircraft Type Checkout and Currency Quiz

Pilot _____ Member Number _____ Date _____

Instructor _____ Score _____

Instructor: Please note the final score (subtract 2.5 points from 100 for each wrong answer) on the checkout form and file the quiz in the Pilot Records folder.

Pilot: Information required to correctly answer the following questions may be found in the PA28-161 POH, the WCFC SOPs, and club checklists, documents and instructional practices. There may be one or more correct answers to each question.

1) The engine in a PA-28-161 is a

- A. Continental 0-300
- B. Lycoming 0-320
- C. Lycoming 0-235
- D. Lycoming 0-540

2) The rated power of the engine as installed in a PA-28-161 is

- A. 100 hp
- B. 125 hp
- C. 150 hp
- D. 160 hp

3) The quantity of oil in the engine for flight should be

- A. 4 quarts minimum, 6 quarts maximum
- B. 30 pounds minimum, 42 pounds maximum
- C. 6 quarts minimum, 8 quarts maximum
- D. 7.5 pounds minimum, 10 pounds max

4) 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"

5) 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

6) 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

7) Under normal circumstances (leaned) the PA-28-161 burns approximately

- A. 6.5 gph at cruise power
- B. 8.5 gph at cruise power
- C. 9.5 gph at cruise power
- D. 10.5 gph at cruise power

8) The maximum demonstrated cross-wind component for the PA-28-161 is

- A. 12 knots
- B. 15 knots
- C. 17 knots
- D. 25 knots

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9) The maximum gross takeoff weight for the WCFC PA-28-161 aircraft is

- A. 2000 pounds
- B. 2325 pounds
- C. 2350 pounds
- D. 2440 pounds

10) Given the following loadings, are the Normal category weight and balance limitations met for a typical WCFC Warrior (For this calculation, please use the 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

- A. No. 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.

11) What would be a minimally inconvenient loading change that would suffice to make this aircraft legally flyable?

- A. No change is necessary.
- B. Leave 50 lbs of baggage behind.
- C. Offload at least one passenger.
- D. Have the kid and one 170 lb passenger exchange seats.

After this readjustment of CG, would this aircraft be legal for steep turns with a bank angle of 45 degrees? (yes? / no?) Of 65 degrees? (yes? / no?)

12) V_{fe} , the maximum flap extension speed in the Warrior, is:

- A. 111 KIAS
- B. 103 KIAS
- C. 73 KIAS
- D. 126 KIAS

13) According to the WCFC SOPs, the minimum field length allowed for the PA-28-161 is

- A. 1500 feet
- B. 2000 feet
- C. 2500 feet
- D. any field length allowed by the performance tables in the PA-28-161 POH

14) Best rate 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. 85 KIAS

15) 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

16) At 2000 pounds total weight, a reasonable approximate maneuvering speed for the PA-28-161 is

- A. 76 KIAS
- B. 88 KIAS
- C. 100 KIAS
- D. 111 KIAS

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17) Please list the following airspeeds for the PA-28-161:

V_{ne} _____ KIAS

V_{no} _____ KIAS

18) Recommended final-approach indicated airspeed for short field, full (40-degree) flap landings is 63 KIAS. (POH Section 4-5 'Approach and Landing.') The "Airspeed System Calibration" graph on page 5-11 of the POH shows that 63 KIAS (indicated airspeed -full flaps) equates to 65 KCAS (calibrated airspeed): 1.3 times the 50 KCAS (44 KIAS) full-flap calibrated stall airspeed (V_{so}). In a flaps-up landing, what indicated airspeed should be trimmed for to achieve this same 1.3 ratio of final approach calibrated airspeed to the "clean" stall calibrated airspeed (58 KCAS)?

- A. 65 KIAS
- B. 50 KIAS
- C. 73 KIAS
- D. 57 KIAS

19) Recommended short-field flap setting, rotation speed, and initial-climb airspeed for best obstacle clearance for the PA-28-161 are:

- A. 0 degrees, 50 KIAS, and 65 KIAS
- B. First "notch," 63 KIAS, and 65 KIAS
- C. 25 degrees (second "notch"), 52 KIAS, and 52 KIAS
- D. 40 degrees (third "notch"), 52 KIAS, and 79 KIAS

20) Stall speed without flaps (V_s) for the PA-28-161 is

- A. 44 KIAS
- B. 50 KIAS
- C. 52 KIAS
- D. 63 KIAS

21a) What is the longest IFR leg from departure to destination that the WCFC SOPs allow to be planned for a PA-28-161 with fuel to the tabs? (Assume that the approaches, holding, and flight to the alternate will require 40 minutes beyond the time required from departure to original destination.)

- A. 1:20
- B. 2:20
- C. 2:45
- D. 3:30

21b) Alternate question for VFR pilots: What is the longest VFR leg that the WCFC SOPs allow to be planned for a PA-28-161 with fuel to the tabs under VFR?

- A. 3:00
- B. 2:20
- C. 1:50
- D. 4:40

22) The PA-28-161 manual specifies that leaning should be accomplished whenever developing less than 75% power regardless of altitude. Why is this important?

- A. Fuel burn calculations are predicated on leaned operation.
- B. Increased power is available by properly leaning.
- C. Lead may build up in the spark plugs and cause bad mag checks* if leaning is not accomplished routinely.
- D. All of the above.

23) Assuming standard temperature, best power mixture, and gross weight, approximately what RPM is required to achieve 65% power at 7,000 feet?

- A. 2500 RPM
- B. 2520 RPM
- C. 2600 RPM
- D. 2440 RPM

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24) Assuming best power mixture, 2325 pounds gross weight, and standard temperature, 2600 RPM will maintain at least 75% power up to what altitude?

- A. 4000 feet
- B. 5000 feet
- C. 2000 feet
- D. 8000 feet

25) A flight is planned to Mountain Air, an airport in the North Carolina mountains. Field elevation is 4432 feet; the single paved runway is 2900 feet long, with 50-foot obstacles within 200 feet of both ends of the runway. OAT at field elevation is 24 C. Assume no wind, maximum gross weight, and the use of short field techniques. According to the POH, what are the needed landing and take-off distances?

Landing _____ ft.

Takeoff _____ ft.

26) In the event of a complete engine failure in flight, what is the best glide speed?

- A. 52 KIAS
- B. 73 KIAS
- C. 79 KIAS
- D. 85 KIAS

27) Which of the following is true about the PA-28-161 electrical system?

- A. It is a 12-volt system with a 14-volt 60 ampere alternator
- B. It is a 12-volt system and the battery is under the rear passenger seat. A special booster cable may be plugged into the external power receptacle for externally-powered starts.
- C. It is a 12-volt system and the battery is in the engine compartment.
- D. It is a 24-volt system and the battery is under the rear passenger seat.

28) With the engine in the PA-28-161 operating and the master switch on, which of the following is true?

- A. With all electrical equipment off, the ammeter indicates the discharge rate of the battery.
- B. The ammeter will indicate the total ampere draw of all electrical equipment including the charging rate of the battery.
- C. With all internal and external lights on and radios on in typical night operation, the ammeter will indicate approximately fifteen amperes.
- D. The ammeter will indicate the total potential current output of the alternator.

29) If no output is indicated on the ammeter during flight, the POH recommends

- A. Resetting the field circuit breaker if open and then recycling the ALT switch to reset the overvoltage relay
- B. Landing at the nearest airport
- C. Turning off the BAT master switch to avoid overheating and a possible electrical fire
- D. Maintaining a minimum electrical load if output cannot be restored

30) A pilot observing rapid altimeter fluctuations and erratic oscillations in the vertical speed indicator should

- A. Break the case of the vertical speed indicator to admit static air to the system
- B. Suspect a pitot tube blockage and turn on the pitot heat
- C. Suspect water in the static line and attempt to drain the water through the drain valves located on the lower left fuselage wall
- D. Suspect a broken or leaking static line and squawk it for maintenance

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31) The PA28-161 POH recommends against the use of strobe lights

- A. During daylight hours
- B. When the ammeter registers a discharge
- C. When taxiing in the vicinity of other aircraft
- D. On dark, clear nights

32) The flaps on the PA28-161

- A. Must be placed in the UP or retracted position before they will lock and support weight.
- B. May be lowered at speeds up to and including 113 knots, although a slower speed will reduce operating loads
- C. Are deployable in positions of 10, 20, and 30 degrees
- D. Improve controllability when taxiing in windy conditions

33) The flow of heated cabin air between front and rear seats can be regulated by

- A. manipulating the heater and defroster controls on the instrument panel
- B. opening and closing the round ducts on the cabin sidewalls
- C. the heat diversion controls located on either side of the console atop the heat ducts
- D. opening and closing the overhead vents

34) The gyroscopic instruments (attitude indicator and heading indicator) may be damaged by

- A. Vacuum levels in excess of 6 inches of mercury
- B. Interior cabin temperatures in excess of 90 deg. F.
- C. Turning off the master switch while the gyros are turning in flight
- D. Restarting the engine before the gyros have come fully to rest

35) Which of the following are true of the PA28-161 fuel system?

- A. If the primer is not locked, excessive fuel may flow to one or more cylinders, resulting in rough running at low speeds
- B. The fuel tank selector valve cannot shut off fuel flow to the engine unless the mixture control is in the idle cutoff position
- C. For takeoff, the engine-driven fuel pump is automatically retarded and the electric fuel pump is relied upon to provide a consistent fuel flow at high engine rpms.
- D. A branch of the main fuel line to the carburetor flows to the fuel pressure gauge in the cabin.
- E. The fuel strainer on the lower left front of the fire wall drains directly from both tanks bypassing the fuel tank selector valve

36) If over-priming may have flooded the engine, the recommended start procedure is:

- A. Close the throttle fully, move the mixture to idle cutoff, leave the electric fuel pump off and crank. When the engine fires, advance the throttle one-half inch and advance the mixture.
- B. Open the throttle fully, move the mixture to idle cutoff, leave the electric fuel pump off and crank. When the engine fires, advance the mixture and retard the throttle.
- C. Open the throttle fully, move the mixture to idle cutoff, turn the electric fuel pump on and crank. When the engine fires, advance the mixture and retard the throttle.
- D. Open the throttle approximately one-half inch, move the mixture to full rich, turn the electric fuel pump off and crank. When the engine fires, turn off the electric fuel pump and set the throttle for 1000 rpm.

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37) After landing and refueling, the recommended procedure for restarting the PA28-161 when the engine is hot is

- A. Open the throttle fully; turn off the electric fuel pump; move the mixture control lever to idle cutoff; engage the starter. When the engine fires advance the mixture and retard the throttle.
- B. Open the throttle approximately one-half inch; turn on the electric fuel pump; move the mixture control lever to idle cut-off; engage the starter. When the engine fires advance the mixture and move the throttle to the desired setting.
- C. Open the throttle approximately one-half inch; turn off the electric fuel pump; move the mixture control lever to full rich; engage the starter. When the engine fires move the throttle to desired setting.
- D. Open the throttle approximately one-half inch; turn on the electric fuel pump; move the mixture control lever to full rich; engage the starter. When the engine fires move the throttle to the desired setting.

38) When starting the PA28-161 aircraft

- A. The POH recommends always priming the engine before starting unless it has recently been operated and remains hot.
- B. Rapidly advancing and retarding the throttle several times before cranking effectively uses the accelerator pump to move fuel through the primer lines to the cylinders.
- C. Engine fires are usually the result of over-priming.
- D. If a fire develops while starting, continue to turn the engine with the starter or continue to operate the engine if started to draw fuel and fire into the induction system and the engine.
- E. Do not crank the engine continuously for more than five or ten seconds if it fails to start. The prime is unlikely to be correct.

39) If you discover pink aviation fuel in the tanks of the PA-28-161, you should

- A. Refuel with the same type of fuel if possible
- B. Refuel only with light blue aviation fuel
- C. Not fly the aircraft until the fuel has been drained and replaced
- D. Fly the aircraft, but closely monitor engine temperatures

40) Prolonged slips or skids which result in an altitude loss in excess of 2000 feet or other radical or extreme maneuvers should be avoided because:

- A. The PA28-161 is not certified for prolonged slips or skids
- B. Fuel flow interruption may occur when the tank being used is not full
- C. The airframe may be damaged by exposure to the asymmetrical stresses of prolonged slips or skids
- D. The battery electrolytes could be damaged by a prolonged tilt