Blue Sky Aviation New Aircraft Checkout
Dakota PA-28-236

A brief history:

Piper has introduced so many variants of the original (1962) PA-28 design that it's hard to keep track of which Cherokee is which. Our "PA-28" is actually the PA-28-236, or more commonly known as the Dakota.

The Dakota was introduced in 1979 as a new model, but it was really the second generation of the PA-28-235 Pathfinder. In fact, the Dakota and Pathfinder were almost identical in every way but one: Piper decided that a new tapered wing would lessen induced drag when compared to the old "Hershey bar" wing.

This new tapered wing design gave the Dakota a number of distinct advantages over its predecessor; it was faster, carried more fuel, and even had better climb performance too.

Our Dakota is actually a first year model but has been improved substantially since it flew off the factory line: two G5s, a GTN 750, and a GFC500 autopilot. In addition to its advanced avionics, it also has a JPI-830 engine management system.

Like previous checkouts, we have prepared an “open book” questionnaire as a way to help you get familiar with the Dakota. In addition to this document, you should know that all required documents, including both the POH and manuals, are on the Blue Sky website.

Please bring this completed document to your checkout session with your CFI. Feel free to discuss any questions or concerns you may have during your checkout. Being prepared will expedite the checkout (read: more flying, less talking).

Your first check out in the Dakota is for VFR purposes only so that we can facilitate getting everyone checked quickly. You will find the avionics quite similar to the Skylane. And you’ll find it a little heavier on the controls than the Archer. It will be up to you and your instructor to assess the need for any IFR training based on your currency and familiarity with the Dakota’s systems.

The following set of questions is meant to be practical - all the information contained within is to help you be a better, safer pilot. New planes always present some challenges and the Dakota is no different.

Here’s to a great addition to our fleet!!

Pilot_____ **Date**_____

General:

1. Is the Dakota certified for IFR operations? **YES**/NO
2. Let’s say you want to get your CFI cert. and you need one hour of spin training.
3. Can you do that in the Dakota? YES/**NO**
4. What engine is in the Dakota? **Lycoming O-540 and 235HP.**
5. What is static RPM? **2400 RPM**
6. Do you need a high-performance endorsement to fly a Dakota? **YES.**
7. How many quarts of oil does the engine take? **12 quarts**
8. What is the minimum number of quarts of oil for normal use? **9 quarts**
9. What is the minimum number of quarts in an O-540? **2.75 quarts! (Section 8.19) Note: That’s NOT the club minimum.**
10. What is the maximum engine oil operating temperature? **245 degrees F.**
11. **Note: Don’t confuse this with CHT; this is OIL temp.**
12. What is the normal engine oil pressure range? **25-100 PSI**
13. What is the maximum cylinder head temperature (CHT) of the O-540? **500 F**
14. What are considered good CHTs during most operations of the O-540? **<= 400 F degrees**

Fuel System:

13. What is the normal fuel pressure range? **0.5-8 PSI**
14. What kind of fuel does the Dakota take? **100LL**
15. What color is the fuel normally? **Blue**
16. What is the total fuel capacity? **77 US Gallons**
17. How much of that is usable? **72 US gallons**
18. How much fuel per wing? **38.5 US gallons**
19. How many fuel drains are there and where are they located? **Three drains, two located in the inboard rear corner of the wing and another one from the cowling at the lower left front corner of the firewall.**
20. How many gallons of fuel do you have per wing if you see fuel at the bottom of the indicator tab? **25 gallons (Section 7.15)**
21. How many fuel pumps does the Dakota have? **Two, one engine-driven and one electrical operated by a rocker switch on the switch panel.**
22. Does the Dakota have a BOTH detent on the fuel selector? **No, it has OFF, LEFT, and RIGHT.**
23. When changing fuel tanks what should you do first? **The fuel pump should be turned ON and fuel pressure should be verified before turning the fuel pump OFF.**

Electrical System:

24. What kind of battery does the Dakota have? **12-volt**
25. What kind of alternator does it have? **14-volt, 60A**
26. What does the ammeter display? **The load placed on the alternator, or what the battery needs to stay charged.**
27. What is the maximum continuous load? **30 amps (Section 7.17)**
28. If the alternator dies in flight, do you immediately lose all electronics? **No, the battery will be drained after a while (depending on load) and there are internal batteries for each G5 that last ~4 hours each.**
29. If you see the ALT annunciation during flight, what is the first thing you should check? **The ALT circuit breaker to see if it has tripped. Check battery voltage and load on ammeter.**
30. If the ALT circuit breaker is tripped, what should you do? **This is a high load breaker. It tripped for a reason. You should carefully evaluate whether it is required for continued flight before resetting.**

Landing Gear:

31. What kind of landing gear does the Dakota have? **Tricycle fixed gear**

32. What are proper tire pressures? **The nose gear tire should take 29 PSI and the mains should be between 35-40 PSI for normal operation. (Section 8.23).**

33. What is proper strut exposure? **There should be 3.25 inches of clearance for the nose and 4.5 inches for the mains.**
34. Can you put air in the tire as part of routine maintenance under Part 43? **YES**
35. Can you adjust the struts? **YES but don't. If you think there is an issue with the struts contact the maintenance officer or a mechanic.**

Flaps:

36. Does the Dakota have electrically controlled flaps? **NO**
37. How do you operate the flaps? **There is a bar on the floor that you pull up which has a spring lock to keep it in place.**
38. What flap positions can be selected? **10, 25, and 40 degrees**
39. Can you use the flaps as a step? **YES but they have to be in the full up position. The flaps will not support any kind of step load unless they are completely retracted. (Section 7.13)**
40. How do you retract the flaps? **Pull up on the lever to disengage the spring lock and gently let the lever return back to the floor position.**

Pitot-Static System:

41. Where is the static port located? **Pilot's side, rear, aft fuselage (Section 7.23)**
42. Where is the alt-static port located? **Left side of the instrument panel**

43. When using alt-static air, what else should you do? **The storm window and cabin vents should be closed and the cabin heater and defroster should be on when using alternate static air. (Section 7.23)**
44. What is the accuracy of the alt-static air? **Accuracy should be generally good, and within 50 feet. (Section 7.23)**
45. Where is the pitot tube? **Under the right wing**
46. Where are the pitot and static line drains? **Under the right wing, near where the spar and wing attach. Drain during preflight. (Figure 7-17)**

Airspeeds:

47. Vr = ? **60-65 KIAS**
48. Vx = ? **73 KIAS**
49. Vy = ? **85 KIAS**
50. Va = ? **124 KIAS at max gross, 96 KIAS at a little over half that**
51. Vne = ? **173 KIAS**
52. Vg = ? **85 KIAS at max gross, notice that Vy and Vg are equal.**
53. Vs0 = ? **56 KIAS**
54. Vs1 = ? **65 KIAS**
55. Vfe = ? **102 KIAS, not 110 like the Skyhawk!**
56. Vref = ? **72 KIAS with 40 degrees of flaps**
57. Maximum demonstrated cross = ? **17 knots**

Weight and Balance:

58. Maximum ramp weight? **3011 lbs.**
59. Maximum takeoff weight? **3000 lbs.**
60. Maximum landoff weight? **3000 lbs.**

61. Maximum baggage weight? **200 lbs.**
62. What could happen if you land over the maximum takeoff weight? **You could damage the landing gear.**.

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Normal Procedures:

63. What position should the mixture knob be set to during a normal cold start? **Full RICH**
64. What should you immediately check after the engine starts? **Oil pressure**
65. What is the maximum differential you should see between mags during your run-up? **175 RPM max diff/50 RPM drop both sides, note: the max differential is more important than any single RPM drop.**
66. When phases of flight should the fuel pump be turned on? **Starting, takeoff, and landing, and switching tanks.**
67. Why is it important to have the fuel pump on during landing? **Because the Dakota is a low-engine aircraft and on a go around, particularly with a high-angle of attack, fuel starvation is a concern.**
68. Do you need flaps for take-off? **No, but you can use 10 or 25 degrees if needed or desired.**
69. How would you perform a short field take-off? **Flaps 25 degrees, accelerate to 50-60 KIAS, Vx initial climb past the obstacle and then Vy.**
70. Any differences with a soft field take-off? **Same settings as short field but use typical soft field technique.**
71. After reducing power on a descent, what should you turn on during a descent and why? **Carb heat to avoid potential carburetor icing.**
72. During landings, what side should the fuel tank be set to? **Ensure the fuel tank is on the most full side**.

Emergency Procedures:

73. You are flying along and suddenly the engine is running rough, what are a few things you can do to diagnose quickly? **Carb heat on, fuel pump on, mixture full rich, try another fuel tank, try each mag.**
74. If you suspect you have carb ice, should you leave the carb heat on? **Turn on the carb heat, leave it on until the roughness clears, then climb or descend to get out of icing conditions and turn carb heat off.**
75. If you need to make an off field landing, what are some of the things you would do to prepare the Dakota for landing? **Fuel pump off, fuel switch off, master off, ignition off, mixture idle-cut off**
76. If you see oil pressure going down but oil temps staying the same, what could that mean? **It could mean you have a faulty oil pressure gauge but you can't be sure. Land at the nearest suitable airport and have it checked.**