



2008 State Competition
FFA Agricultural Mechanics Contest
University of Missouri

Contestant # _____
Contestant Name _____
Chapter _____

Tractor Power

50 points

Directions: Please circle the appropriate answer or fill in the blank for each question. When you are finished please turn your sheet in. Remember to put your name, contestant number and chapter on your paper. Not doing so will result in a zero for this section. If you have questions please feel free to ask.

John Deere 7420 Tractor

2 points each

1. With the POWRQUAD Plus transmission is it required to use the clutch for shifting?
 - a. No
 - b. Yes
2. Based on the code tagged #2: Your tractor is having mechanical difficulty. What would you need to do?
 - a. Fill the fuel tank with diesel fuel.
 - b. Blow the radiator free of debris.
 - c. Replace the transmission/hydraulic oil filter.
 - d. Drain the water separator.
3. How often does item tagged #3 need to be checked for mechanical problems?
 - a. 50 Hours
 - b. 10 Hours
 - c. 750 hours
 - d. 2000 hours
4. You buy a new John Deere 7020 series tractor. You get it to your farm and your neighbor is angry at you, so he drains your engine oil. The next day you see what has been done and the oil is contaminated with dirt. According to the owner's manual, which of the following is a true statement?

(Hint it's a new tractor with less than 100 hours.)

 - a. Use any oil that is cheap to break-in.
 - b. Use only John Deere oil to break-in engine.
 - c. It is important for you to use John Deere break-in oil during the first 100 hours.
 - d. Filter out the dirt in the contaminated oil and reuse.

5. What is the maximum allowable bio-diesel concentration recommended for use in this tractor?
 - a. 2.5% (B2.5)
 - b. 5% (B5)
 - c. 10% (B10%)
 - d. 20% (B20)

6. The rear tread setting for a single two-position wheel, rack and pinion axle is 2808 mm. Your tractor has a tire size of 18.4 and the wheel is dished in. What is the minimum range of your tire?
 - a. 2187 mm (86.1 in)
 - b. 1588mm (62.5 in)
 - c. 2243 mm (88.3 in)
 - d. 1525 mm (60 in)

7. If indicator light 13 glows while engine is running what is it indicating?
 - a. The air cleaner element must be cleaned or replaced.
 - b. The transmission/hydraulic oil temperature is too high.
 - c. The headlights are on high beam.
 - d. A serious malfunction has occurred. Turn engine off immediately and determine the cause.

8. When using safety chains how are the chains supposed to be properly supported to the tractor?
 - a. Around chain carrier only
 - b. Through the chain carrier and then attached to the draw bar support.
 - c. Never needed on an implement
 - d. Placed on top of the hitch through the clevis of the draw bar.

9. The engine oil should be checked:
 - a. Every 10 hours
 - b. Every 15 hours
 - c. Every 50 hours
 - d. Every 100 hours

10. Identify the correct oil used for the MFWD Axle Housing and Wheel Hub.
 - a. Hy-Guard or Low Viscosity HY-GARD
 - b. 80W-90
 - c. Used engine oil

Test, Analyze, and Service
2 points each

Fill in the Blank

11. What kind of oil goes in oil cap (tag #11)?
12. What type of oil goes in oil cap (tag #12)?
13. Test the antifreeze mix (tag #13) to see what the coldest working temperature it can be run at?
14. Test the battery cell (tagged #14) to determine how much charge it will hold.
15. (Tag # 15) what does the gauge on the crimping machine need to be set at to properly crimp this hydraulic hose fitting?

Tractor parts ID

2 point each

- | | |
|-----------|-----------------------------|
| 15. _____ | a. 1000 RPM PTO Shaft |
| 16. _____ | b. 540 RPM PTO Shaft |
| 17. _____ | c. Alternator |
| 18. _____ | d. Crankcase dipstick |
| 19. _____ | e. Engine oil filter |
| 20. _____ | f. Fuel Filter |
| 21. _____ | g. Fuel Pressure Line |
| 22. _____ | h. Fuel Return Line |
| 23. _____ | i. Gear shift |
| 24. _____ | j. Generator |
| 25. _____ | k. Hazard Light Switch |
| | l. Injection pump |
| | m. Intercooler |
| | n. Left Hand Reverser |
| | o. Lift Arm |
| | p. Light switch |
| | q. Loader Heavy Duty Latch |
| | r. Loader Quick Change Lock |
| | s. MFWD Axle |
| | t. Radiator |
| | u. Rockshaft remote control |
| | v. SCV hydraulic lever |
| | w. Selective Control Valve |
| | x. Starter |
| | y. Telescopic draft link |

Imperial Eastman Style E7 Hose
SAE 100R1, Type AT

HOSE	CPLG	HOSE I.D.	HOSE SIZE	HOSE O.D.	WIRE O.D.	MAX WKG P.S.I	STD. DIE SIZE	STD. GAUGE SET	ALT. DIE SIZE	ALT. GAUGE SET	SHELL LOCATION	REF. CRIMP DIA.
E703	HF03	.187	----	.469	.375	3000	.500	68	----	----	B – 9/16	.595
E704	HU04	.250	¼”	.531	.437	2750	.500	69	----	----	F	.585
E705	HU05	.312	----	.594	.500	2500	.500	63	----	----	F	.665
E706	HU06	.375	3/8”	.687	.593	2250	.500	56	----	----	F	.755
E708	HU08	.500	½”	.812	.718	2000	.750	65	.500	46	F	.885
E710	HU10	.625	5/8”	.937	.844	1500	.750	56	----	----	F	1.000
E712	HU12	.750	¾”	1.094	1.000	1250	1.050	70	----	----	F	1.140
E716	HU16	1.000	1”	1.437	1.312	1000	1.050	46	----	----	F	1.455