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Test 1458: John Deere 4250 Powershift Diesel 15-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1458

JOHN DEERE 4250 POWERSHIFT DIESEL

15 SPEED

POWER TAKE-OFF PERFORMANCE											
Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)			
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb				
MAXIMUM POWER AND FUEL CONSUMPTION											
Rated Engine Speed—Two Hours (PTO Speed—1002 rpm)											
120.86 (90.13)	2200	7.658 (28.989)	0.442 (0.269)	15.78 (3.109)	188 (86.8)	58 (14.7)	76 (24.2)	28.863 (97.467)			
VARYING POWER AND FUEL CONSUMPTION—Two Hours											
104.22 (77.72)	2234	6.954 (26.324)	0.465 (0.283)	14.99 (2.952)	185 (85.0)	60 (15.6)	76 (24.4)	..... .....		
0.00 (0.00)	2334	2.499 (9.460)	..... .....	..... .....	173 (78.3)	60 (15.6)	75 (23.9)	..... .....		
53.29 (39.74)	2285	4.670 (17.678)	0.611 (0.372)	11.41 (2.248)	182 (83.1)	60 (15.6)	74 (23.3)	..... .....		
121.20 (90.38)	2200	7.706 (29.170)	0.444 (0.270)	15.73 (3.098)	188 (86.9)	59 (15.0)	74 (23.6)	..... .....		
26.97 (20.11)	2302	3.569 (13.510)	0.923 (0.562)	7.56 (1.489)	176 (80.0)	59 (15.0)	74 (23.3)	..... .....		
79.21 (59.07)	2262	5.831 (22.073)	0.514 (0.312)	13.58 (2.676)	184 (84.4)	61 (16.1)	76 (24.7)	..... .....		
Av Av	64.15 (47.84)	2270	5.205 (19.703)	0.566 (0.344)	12.33 (2.428)	181 (82.9)	60 (15.4)	75 (23.9)	28.840 (97.388)		
DRAWBAR PERFORMANCE											
Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption		Temp. °F (°C)				
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th Gear											
101.39 (75.60)	6065 (26.98)	6.27 (10.09)	2201	4.40	7.544 (28.556)	0.519 (0.316)	13.44 (2.648)	187 (85.8)	42 (5.6)	48 (8.9)	29.320 (99.009)
75% of Pull at Maximum Power—Ten Hours 10th Gear											
80.05 (59.69)	4639 (20.64)	6.47 (10.41)	2253	3.60	6.626 (25.083)	0.577 (0.351)	12.08 (2.380)	184 (84.2)	47 (8.2)	56 (13.3)	29.153 (98.445)
50% of Pull at Maximum Power—Two Hours 10th Gear											
54.47 (40.62)	3092 (13.75)	6.61 (10.63)	2278	2.61	5.358 (20.281)	0.686 (0.417)	10.17 (2.003)	184 (84.2)	49 (9.2)	59 (14.7)	29.185 (98.553)
50% of Pull at Reduced Engine Speed—Two Hours 13th Gear											
54.57 (40.69)	3092 (13.75)	6.62 (10.65)	1394	2.57	3.996 (15.126)	0.511 (0.311)	13.66 (2.690)	179 (81.7)	50 (10.0)	61 (15.8)	29.155 (98.452)
MAXIMUM POWER IN SELECTED GEARS											
87.11 (64.96)	12802 (56.94)	2.55 (4.11)	2227	14.97	4th Gear			183 (83.6)	37 (2.8)	40 (4.4)	29.280 (98.874)
97.15 (72.45)	12167 (54.12)	2.99 (4.82)	2200	12.41	5th Gear			184 (84.4)	40 (4.4)	44 (6.7)	29.280 (98.874)
100.47 (74.92)	10742 (47.78)	3.51 (5.64)	2200	9.62	6th Gear			186 (85.6)	47 (8.3)	55 (12.8)	29.260 (98.807)
102.67 (76.56)	9307 (41.40)	4.14 (6.66)	2199	7.52	7th Gear			186 (85.3)	47 (8.3)	55 (12.8)	29.270 (98.840)
100.86 (75.21)	8039 (35.76)	4.71 (7.57)	2198	5.91	8th Gear			187 (86.1)	46 (7.8)	54 (12.2)	29.280 (98.874)
101.18 (75.45)	6929 (30.82)	5.48 (8.81)	2197	5.09	9th Gear			188 (86.7)	46 (7.8)	54 (12.2)	29.280 (98.874)
103.26 (77.00)	6185 (27.51)	6.26 (10.08)	2199	4.48	10th Gear			187 (86.1)	45 (7.2)	52 (11.1)	29.300 (98.942)
102.24 (76.24)	5286 (23.51)	7.25 (11.67)	2200	3.86	11th Gear			187 (85.8)	47 (8.3)	56 (13.3)	29.260 (98.807)
105.11 (78.38)	4716 (20.98)	8.36 (13.45)	2199	3.55	12th Gear			186 (85.3)	47 (8.3)	56 (13.3)	29.260 (98.807)
LUGGING ABILITY IN 10th GEAR											
Crankshaft Speed rpm			2199	1973	1764	1542	1316	1098			
Pull—lbs (kN)			6185 (27.51)	7098 (31.57)	7779 (34.60)	8207 (36.51)	8123 (36.13)	7379 (32.82)			
Increase in Pull %			0	15	26	33	31	19			
Power—Hp (kW)			103.26 (77.00)	105.50 (78.67)	102.75 (76.62)	94.29 (70.31)	79.76 (59.47)	60.75 (45.30)			
Speed—Mph (km/h)			6.26 (10.08)	5.57 (8.97)	4.95 (7.97)	4.31 (6.93)	3.68 (5.93)	3.09 (4.97)			
Slip %			4.48	5.09	5.69	6.13	5.99	5.54			
TRACTOR SOUND LEVEL WITH CAB							2000 RPM dB(A)	2200 RPM dB(A)			
Maximum Available Power—Two Hours							74.0	74.5			
75% of Pull at Maximum Power—Ten Hours								74.5			
50% of Pull at Maximum Power—Two Hours								74.5			
50% of Pull at Reduced Engine Speed—Two Hours								71.5			
Bystander in 15th gear								86.0			

Department of Agricultural Engineering

Dates of Test: October 11-26, 1982

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 46.6 (rating taken from oil company's inspection data) Specific gravity converted to 60°/60° (15°/15°) 0.8378 Fuel weight 6.976 lbs/gal (0.836 kg/l) Oil SAE 15W-40 API service classification CD, CC, SD To motor 3.797 gal (14.374 l) Drained from motor 3.689 gal (13.966 l) Transmission and final drive lubricant John Deere Hy-Gard transmission and hydraulic fluid Total time engine was operated 45.5 hours.

ENGINE: Make John Deere Diesel Type six cylinder vertical with turbocharger Serial No. *RG6466T230592* Crankshaft lengthwise Rated rpm 2000 to 2200 Bore and stroke 4.57" × 4.75" (116.0 mm × 120.6 mm) Compression ratio 15.8 to 1 Displacement 466 cu in (7636 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow paper cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter two paper elements with prestrainer Muffler vertical Cooling medium temperature control two thermostats and variable speed fan.

CHASSIS: Type standard with duals Serial No. *RW4250P001044* Tread width rear 60" (1524 mm) to 114" (2890 mm) front 56" (1420 mm) to 82.6" (2099 mm) Wheel base 106.7" (2710 mm) Center of gravity (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 29.5" (749 mm) Vertical distance above roadway 45.0" (1143 mm) Horizontal distance from center of rear wheel tread 0.4" (10 mm) to the left Hydraulic control system direct engine drive Transmission selective gear fixed ratio with full range operator controlled powershift Advertised speeds mph (km/h) first 1.4 (2.2) second 2.0 (3.2) third 2.3 (3.7) fourth 3.0 (4.8) fifth 3.4 (5.5) sixth 3.9 (6.3) seventh 4.5 (7.2) eighth 5.0 (8.1) ninth 5.8 (9.3) tenth 6.6 (10.6) eleventh 7.6 (12.2) twelfth 8.7 (14.0) thirteenth 10.8 (17.3) fourteenth 14.7 (23.6) fifteenth 18.2 (29.3) reverse 1.7 (2.7), 2.4 (3.9), 3.6 (5.9), 5.5 (8.8) Clutch wet multiple disc hydraulically power actuated and operated by foot pedal Brakes wet disc hydraulically power actuated and operated by two foot pedals which can be locked together Steering hydrostatic Turning radius (on concrete surface with brake applied) right 146" (3.7 m) left 146" (3.7 m) (on concrete surface without brake) right 157" (4.0 m) left 157" (4.0 m) Turning space diameter (on concrete surface with brake applied) right 302" (7.67 m) left 302" (7.67 m) (on concrete surface without brake) right 338" (8.58 m) left 338" (8.58 m) Power take-off 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

SUPPLEMENTAL TESTS
POWER AND FUEL CONSUMPTION AT 2000 RPM
POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption		Temperature °F (°C)				Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb	

MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—One Hour (PTO Speed—911 rpm)								
123.32 (91.96)	2000	7.361 (27.864)	0.416 (0.253)	16.75 (3.300)	189 (87.1)	59 (14.8)	76 (24.4)	28.850 (97.422)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	

Maximum Available Power—Two Hours 10th Gear

103.66 (77.30)	6917 (30.77)	5.62 (9.04)	1999	5.69	7.508 (28.420)	0.505 (0.307)	13.81 (2.720)	188 (86.4)	45 (6.9)	51 (10.6)	29.255 (98.790)
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MAXIMUM POWER IN SELECTED GEARS

103.19 (76.95)	10476 (46.60)	3.69 (5.94)	2001	9.14	7th Gear			187 (86.1)	47 (8.3)	55 (12.8)	29.270 (98.840)
104.61 (78.01)	6940 (30.87)	5.65 (9.10)	1999	5.01	10th Gear			188 (86.4)	46 (7.8)	53 (11.7)	29.290 (98.908)
107.71 (80.32)	5340 (23.75)	7.56 (12.17)	2000	3.94	12th Gear			187 (86.1)	47 (8.3)	56 (13.3)	29.250 (98.773)

TIRES, BALLAST AND WEIGHT

		With Ballast		Without Ballast	
Rear Tires	—No., size, ply & psi (kPa)	Four 18.4-38; 6; 12 (85)		Four 18.4-38; 6; 12 (85)	
	—Liquid (each inner)	522 lb (237 kg)		None	
	—Cast Iron (each)	None		None	
Front Tires	—No., size, ply & psi (kPa)	Two 11.00-16; 8; 36 (250)		Two 11.00-16; 8; 36 (250)	
	—Liquid (each)	None		None	
	—Test Equip. (each)	35 lb (16 kg)		None	
Height of Drawbar		24.5 in (625 mm)		24.5 in (625 mm)	
Static Weight with Operator—Rear		11110 lb (5039 kg)		10065 lb (4566 kg)	
		3860 lb (1751 kg)		3790 lb (1719 kg)	
		14970 lb (6790 kg)		13855 lb (6285 kg)	

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 114°F (45.4°C). Nine gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1458.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



John Deere 4250 Powershift Diesel

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