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Test 1357: John Deere 4440 Power Shift Diesel 8-Speed

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NEBRASKA TRACTOR TEST 1357 — JOHN DEERE 4440 POWER SHIFT DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1010 rpm)								
130.41 (97.25)	2200	8.508 (32.206)	0.461 (0.280)	15.32 (3.020)	191 (88.5)	65 (18.3)	76 (24.3)	29.013 (97.974)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
114.04 (85.04)	2262	7.862 (29.761)	0.487 (0.296)	14.50 (2.857)	189 (86.9)	65 (18.3)	76 (24.2)	....
0.00 (0.00)	2346	2.884 (10.917)	....	....	177 (80.6)	65 (18.1)	75 (23.6)	....
58.13 (43.35)	2310	5.356 (20.275)	0.651 (0.396)	10.85 (2.138)	185 (84.7)	64 (17.8)	75 (23.6)	....
130.53 (97.34)	2199	8.520 (32.252)	0.461 (0.281)	15.32 (3.018)	193 (89.2)	64 (17.8)	75 (23.9)	....
29.26 (21.82)	2326	4.133 (15.645)	0.998 (0.607)	7.08 (1.395)	179 (81.7)	65 (18.1)	75 (23.9)	....
86.50 (64.50)	2286	6.609 (25.018)	0.540 (0.328)	13.09 (2.578)	187 (86.1)	65 (18.1)	75 (23.9)	....
Av 69.74 ***(52.01)***	**2288**	**5.894** ***(22.311)***	**0.597** ***(0.363)***	**11.83** ***(2.331)***	**185** ***(84.9)***	**64** ***(18.0)***	**75** ***(23.8)***	**29.020** ***(97.996)***

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 4th Gear											
111.23 (82.95)	9212 (40.98)	4.53 (7.29)	2200	6.69	8.460 (32.023)	0.537 (0.327)	13.15 (2.590)	194 (90.0)	73 (22.8)	85 (29.2)	28.945 (97.743)
75% of Pull at Maximum Power—Ten Hours 4th Gear											
90.52 (67.50)	7093 (31.55)	4.79 (7.70)	2285	5.13	7.408 (28.044)	0.578 (0.352)	12.22 (2.407)	186 (85.7)	61 (16.3)	64 (17.9)	29.041 (98.067)
50% of Pull at Maximum Power—Two Hours 4th Gear											
62.26 (46.43)	4733 (21.05)	4.93 (7.94)	2305	3.03	5.876 (22.242)	0.667 (0.405)	10.60 (2.087)	189 (87.2)	77 (24.7)	91 (32.8)	28.935 (97.709)
50% of Pull at Reduced Engine Speed—Two Hours 6th Gear											
62.14 (46.34)	4730 (21.04)	4.93 (7.93)	1364	2.95	4.389 (16.614)	0.499 (0.303)	14.16 (2.789)	187 (86.1)	73 (22.8)	81 (26.9)	28.930 (97.692)
MAXIMUM POWER IN SELECTED GEARS											
81.38 (60.68)	13738 (61.11)	2.22 (3.58)	2276	13.48	2nd Gear			184 (84.2)	67 (19.4)	70 (21.1)	28.950 (97.760)
109.86 (81.92)	12172 (54.14)	3.38 (5.45)	2199	10.08	3rd Gear			192 (88.9)	71 (21.7)	76 (24.4)	28.960 (97.794)
114.16 (85.13)	9449 (42.03)	4.53 (7.29)	2200	6.69	4th Gear			193 (89.2)	69 (20.6)	74 (23.3)	28.960 (97.794)
112.11 (83.60)	6948 (30.90)	6.05 (9.74)	2199	4.86	5th Gear			194 (89.7)	72 (22.2)	78 (25.6)	28.950 (97.760)
112.20 (83.67)	5320 (23.67)	7.91 (12.73)	2201	3.49	6th Gear			193 (89.4)	72 (22.2)	80 (26.7)	28.950 (97.760)

LUGGING ABILITY IN 4th GEAR

Crankshaft Speed rpm	2200	1982	1750	1545	1314	1093
Pull—lbs (kN)	9449 (42.03)	10755 (47.84)	11915 (53.00)	12706 (56.52)	12584 (55.98)	11242 (50.01)
Increase in Pull %	0	14	26	34	33	19
Power—Hp (kW)	114.16 (85.13)	115.53 (86.15)	111.16 (82.89)	102.88 (76.72)	86.77 (64.70)	65.94 (49.17)
Speed—Mph (km/h)	4.53 (7.29)	4.03 (6.48)	3.50 (5.63)	3.04 (4.89)	2.59 (4.16)	2.20 (3.54)
Slip %	6.69	7.89	9.54	10.87	10.87	8.86

Department of Agricultural Engineering

Dates of Test: August 18-29, 1980, Cab sound test No. 80-6, November 20, 1980

Manufacturer: JOHN DEERE WATERLOO TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50704

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°** *(15°/15°)* 0.8482 **Fuel weight** 7.063 lbs/gal *(0.846 kg/l)* **Oil SAE** 30 **API service classification** CD, CC and SD **To motor** 4.377 gal *(16.569 l)* **Drained from motor** 3.847 gal *(14.562 l)* **Transmission and final drive lubricant** John Deere Hy-Gard **Total time engine was operated** 37.0 hours

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** 6466TR-04 139264RG **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 4.56″ × 4.75″ *(115.9 mm × 120.7 mm)* **Compression ratio** 15.8 to 1 **Displacement** 466 cu in *(7636 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with dust evacuator **Oil filter** one paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: Type standard with duals **Serial No.** 4440P-041136R **Tread width** rear 60″ *(1524 mm)* to 130″ *(3302 mm)* front 56″ *(1422 mm)* to 82″ *(2083 mm)* **Wheel base** 106.6″ *(2709 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 32.5″ *(826 mm)* Vertical distance above roadway 39.9″ *(1014 mm)* Horizontal distance from center of rear wheel tread 0.3″ *(7.5 mm)* to the left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range power shift **Advertised speeds mph** ***(km/h)*** first 1.8 *(2.7)* second 2.5 *(4.0)* third 3.8 *(6.1)* fourth 4.9 *(8.0)* fifth 6.4 *(10.5)* sixth 8.2 *(13.7)* seventh 11.0 *(17.5)* eighth 18.6 *(29.8)* reverse 2.2 *(3.6)*, 3.0 *(5.1)*, 4.6 *(7.6)*, 5.9 *(9.8)* **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″ *(3.71 m)* left 146″ *(3.71 m)* (on concrete surface without brake applied) right 163″ *(4.14 m)* left 163″ *(4.14 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** 1010 rpm at 2200 engine rpm and 540 rpm at 2182 engine rpm.

TRACTOR SOUND LEVEL	With Cab dB(A)	W/O Cab dB(A)
Maximum Available Power—Two Hours	77.0	93.5
75% of Pull at Maximum Power—Ten Hours	77.0	93.0
50% of Pull at Maximum Power—Two Hours	77.5	93.0
50% of Pull at Reduced Engine Speed—Two Hours	74.5	89.0
Bystander in 8th gear	87.0	85.0

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)*
Ballast	—Liquid (each inner)	1328 lb *(602 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 11.00-16; 8; 40 *(275)*	Two 11.00-16; 8; 40 *(275)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Height of Drawbar		22.5 in *(570 mm)*	22.5 in *(570 mm)*
Static Weight with Operator—Rear		12125 lb *(5500 kg)*	9470 lb *(4296 kg)*
—Front		3650 lb *(1656 kg)*	3650 lb *(1656 kg)*
—Total		15775 lb *(7156 kg)*	13120 lb *(5952 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump return was 150°F *(65.6°C)*. Five gears were chosen between stability limit and 10 mph *(16.1 km/h)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1357.**

LOUIS I. LEVITICUS
Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
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Board of Tractor Test Engineers



John Deere 4440 Power Shift Diesel

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