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Test 1264: John Deere 4640 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1264 — JOHN DEERE 4640 DIESEL

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—998 rpm)									
156.30 (116.55)	2200	10.011 (37.895)	0.446 (0.271)	15.61 (3.076)	184 (84.3)	62 (16.8)	75 (24.0)	28.760 (97.118)	

VARYING POWER AND FUEL CONSUMPTION—Two Hours

136.42 (101.73)	2264	9.238 (34.969)	0.472 (0.287)	14.77 (2.909)	180 (82.2)	62 (16.7)	75 (23.9)	.....	.....
0.00 (0.00)	2356	3.092 (11.705)	.....	.....	168 (75.6)	62 (16.7)	75 (23.9)	.....	.....
69.55 (51.86)	2308	6.146 (23.263)	0.616 (0.374)	11.32 (2.229)	176 (80.0)	62 (16.7)	75 (23.9)	.....	.....
156.00 (116.33)	2200	10.026 (37.952)	0.448 (0.272)	15.56 (3.065)	184 (84.4)	62 (16.7)	74 (23.6)	.....	.....
35.53 (26.50)	2328	4.582 (17.346)	0.898 (0.546)	7.76 (1.528)	170 (76.7)	62 (16.7)	75 (23.9)	.....	.....
103.70 (77.33)	2292	7.687 (29.100)	0.516 (0.314)	13.49 (2.657)	178 (81.1)	62 (16.7)	74 (23.6)	.....	.....
Av 83.53 Av (62.29)	2291	6.795 (25.722)	0.567 (0.345)	12.29 (2.422)	176 (80.0)	62 (16.7)	75 (23.8)	28.720 (96.983)	

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 7th (B-2) Gear

130.33 (97.19)	8994 (40.01)	5.43 (8.75)	2199	5.84	9.798 (37.088)	0.524 (0.318)	13.30 (2.621)	179 (81.4)	42 (5.6)	52 (11.1)	28.660 (96.781)
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75% of Pull at Maximum Power—Ten Hours 7th (B-2) Gear

106.58 (79.47)	6960 (30.96)	5.74 (9.24)	2291	4.65	8.771 (33.202)	0.573 (0.349)	12.15 (2.394)	173 (78.3)	33 (0.4)	38 (3.6)	29.295 (98.925)
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50% of Pull at Maximum Power—Two Hours 7th (B-2) Gear

72.56 (54.11)	4617 (20.54)	5.89 (9.48)	2323	3.38	7.034 (26.627)	0.675 (0.411)	10.32 (2.032)	172 (77.8)	56 (13.3)	57 (13.9)	28.460 (96.105)
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50% of Pull at Reduced Engine Speed—Two Hours 9th (B-3) Gear

72.86 (54.34)	4626 (20.58)	5.91 (9.51)	1634	3.38	5.419 (20.514)	0.518 (0.315)	13.45 (2.649)	173 (78.1)	52 (11.1)	53 (11.7)	28.445 (96.054)
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MAXIMUM POWER IN SELECTED GEARS

94.28 (70.30)	15362 (68.33)	2.30 (3.70)	2300	14.81	2nd (A-2) Gear			173 (78.3)	22 (-5.5)	24 (-4.3)	29.350 (99.111)
130.44 (97.27)	11670 (51.91)	4.19 (6.75)	2200	7.84	4th (B-1) Gear			179 (81.4)	43 (6.1)	52 (11.1)	28.640 (96.713)
131.18 (97.82)	9830 (43.73)	5.00 (8.05)	2199	6.39	6th (C-1) Gear			180 (82.2)	43 (6.1)	52 (11.1)	28.640 (96.713)
133.94 (99.88)	9229 (41.05)	5.44 (8.76)	2202	5.76	7th (B-2) Gear			181 (82.5)	46 (7.8)	54 (12.2)	28.640 (96.713)
134.70 (100.45)	7828 (34.82)	6.45 (10.38)	2199	4.81	8th (C-2) Gear			179 (81.7)	43 (6.1)	52 (11.1)	28.640 (96.713)
133.25 (99.37)	6332 (28.16)	7.89 (12.70)	2198	3.91	9th (B-3) Gear			179 (81.7)	43 (6.1)	52 (11.1)	28.640 (96.713)

LUGGING ABILITY IN RATED GEAR 7th (B-2)

Crankshaft Speed rpm		2202	1982	1763	1544	1313	1095
Pull—lbs (kN)		9229 (41.05)	10389 (46.21)	11192 (49.79)	11897 (52.92)	12256 (54.52)	10640 (47.33)
Increase in Pull %		0	13	21	29	33	15
Power—Hp (kW)		133.94 (99.88)	134.64 (100.40)	127.80 (95.30)	118.36 (88.26)	102.95 (76.77)	75.81 (56.53)
Speed—Mph (km/h)		5.44 (8.76)	4.86 (7.82)	4.28 (6.89)	3.73 (6.00)	3.15 (5.07)	2.67 (4.30)
Slip %		5.76	6.70	7.31	8.07	8.52	7.01

Department of Agricultural Engineering

Dates of Test: November 2 to 21, 1977

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 50.8 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8366 **Fuel weight** 6.966 lbs/gal (0.837 kg/l) **Oil** SAE 30 **API service classification** CD, CC and SD **To motor** 4.858 gal (18.390 l) **Drained from motor** 4.295 gal (16.258 l) **Transmission and final drive lubricant** John Deere Hy-Gard Transmission and Hydraulic Oil **Total time engine was operated** 45 hours

ENGINE Make John Deere Diesel Type 6 cylinder vertical with turbocharger and intercooler **Serial No.** 6466AR-07-024419RG **Crankshaft** lengthwise **Rated rpm** 2200 **Bore and stroke** 4.5625" × 4.75" (115.9 mm × 120.7 mm) **Compression ratio** 15.5 to 1 **Displacement** 466 cu in (7636 ml) **Cranking system** 12 volt **Lubrication pressure** Air cleaner paper primary and safety elements with dust evacuator **Oil filter** one screw-on cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** two snap-on paper cartridges **Muffler** vertical **Cooling medium temperature control** 2 thermostats.

CHASSIS: Type standard with duals **Serial No.** 4640H 001412R **Tread width** rear 60" (1524 mm) to 131.6" (3342 mm) front 59.5" (1511 mm) to 95.6" (2428 mm) **Wheel base** 118.5" (3009 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 34.8" (885 mm) Vertical distance above roadway 43.5" (1106 mm) Horizontal distance from center of rear wheel tread 0.23" (6 mm) to the right **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled power shift **Advised speeds mph (km/h)** first 2.0 (3.2) second 2.6 (4.1) third 3.6 (5.8) fourth 4.5 (7.2) fifth 4.6 (7.4) sixth 5.3 (8.5) seventh 5.7 (9.2) eighth 6.7 (10.8) ninth 8.1 (13.0) tenth 8.5 (13.7) eleventh 9.5 (15.3) twelfth 10.3 (16.6) thirteenth 10.9 (17.5) fourteenth 12.1 (19.5) fifteenth 15.4 (24.8) sixteenth 19.6 (31.6) reverse 3.8 (6.1), 4.8 (7.7), 8.5 (13.6), 9.9 (16.0), 10.8 (17.3), 12.6 (20.3) **Clutch** multiple wet 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 161" (4.09 m) left 161" (4.09 m) (on concrete surface without brake) right 182" (4.62 m) left 182" (4.62 m) **Turning space diameter** (on concrete surface with brake applied) right 336" (8.53 m) left 336" (8.53 m) (on concrete surface without brake) right 377" (9.58 m) left 377" (9.58 m) **Power take-off** 998 rpm at 2200 engine rpm.

TRACTOR SOUND LEVEL WITH CAB		dB(A)
Maximum Available Power—Two Hours		77.5
75% of Pull at Maximum Power—Ten Hours		77.5
50% of Pull at Maximum Power—Two Hours		77.5
50% of Pull at Reduced Engine Speed—Two Hours		77.0
Bystander in 16th (D-4) gear		88.0
TIRES, BALLAST AND WEIGHT		
Rear Tires		Without Ballast
—No., size, ply & psi (<i>kPa</i>)		Four 18.4-42; 10; 14 (100)
Ballast	—Liquid (each)	None
	—Cast Iron (each)	None
Front Tires		
—No., size, ply & psi (<i>kPa</i>)		Two 14L-16.1; 6; 28 (190)
Ballast	—Liquid (each)	None
	—Cast Iron (each)	None
Height of drawbar		24 in (610 mm)
Static weight with operator —rear		13555 lb (6148 kg)
	front	4565 lb (2071 kg)
	total	18120 lb (8219 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 153°F (67.4°C). Six gears were chosen between 15% slip and 15 mph (24.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1264**.

LOUIS I. LEVITICUS

Engineer-in Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



John Deere 4640 Diesel