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January 2006

Test 1886: John Deere 8230T Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1886—SUMMARY 553

JOHN DEERE 8230T DIESEL

16 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1047 rpm)					
202.87 (151.28)	2100	11.56 (43.77)	0.399 (0.243)	17.54 (3.46)	
Standard Power Take-off Speed(1000 rpm)					
219.07 (163.36)	2006	12.02 (45.48)	0.384 (0.234)	18.23 (3.59)	
Maximum Power (1 hour)					
232.55 (173.41)	1800	12.58 (47.61)	0.379 (0.230)	18.49 (3.64)	

VARYING POWER AND FUEL CONSUMPTION

202.87 (151.29)	2100	11.56 (43.77)	0.399 (0.243)	17.54 (3.46)	Air temperature
176.99 (131.98)	2154	10.57 (40.01)	0.418 (0.254)	16.75 (3.30)	75°F(24°C)
133.97 (99.90)	2166	8.88 (33.63)	0.464 (0.282)	15.08 (2.97)	Relative humidity
88.90 (66.30)	2174	7.01 (22.27)	0.552 (0.336)	12.68 (2.50)	35%
45.19 (33.70)	2186	5.00 (18.92)	0.774 (0.471)	9.04 (1.78)	Barometer
1.35 (1.01)	2193	4.01 (15.19)	20.754 (12.624)	0.34 (0.07)	28.77" Hg(97.43 kPa)

Maximum torque - 747 lb.-ft. (1013 Nm) at 1502 rpm

Maximum torque rise - 47.1%

Torque rise at 1699 engine rpm - 40%

DRAWBAR PERFORMANCE (Unballasted)

FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—9th Gear									
170.72 (127.31)	14812 (65.89)	4.32 (6.96)	2099	2.26	0.478 (0.291)	14.65 (2.89)	183 (84)	62 (17)	29.13 (98.65)
75% of Pull at Maximum Power—9th Gear									
132.56 (98.85)	11101 (49.38)	4.48 (7.21)	2154	1.31	0.532 (0.323)	13.17 (2.59)	180 (82)	62 (17)	29.12 (98.61)
50% of Pull at Maximum Power—9th Gear									
89.33 (66.61)	7397 (32.90)	4.53 (7.29)	2166	0.73	0.635 (0.386)	11.03 (2.17)	176 (80)	63 (17)	29.12 (98.61)
75% of Pull at Reduced Engine Speed—11th Gear									
132.47 (98.78)	11102 (49.38)	4.47 (7.20)	1607	1.28	0.491 (0.299)	14.26 (2.81)	188 (86)	65 (18)	29.12 (98.61)
50% of Pull at Reduced Engine Speed—11th Gear									
89.27 (66.57)	7399 (32.91)	4.52 (7.28)	1615	0.69	0.557 (0.339)	12.56 (2.47)	179 (82)	64 (18)	29.12 (98.61)

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln, Nebraska 68583-0832

Dates of tests: September 27 - October 10, 2006

Manufacturer: John Deere Tractor Works, 3500 East Donald St., P.O. Box 270, Waterloo Ia, 50704-0270

FUEL, OIL and TIME: Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.8409 Fuel weight 7.002 lbs/gal (0.839 kg/l) Oil SAE 15W-40 API service classification CI-4 Transmission and hydraulic lubricant John Deere Hy-Gard fluid Total time engine was operated: 24.5 hours

ENGINE: Make John Deere Diesel Type six cylinder vertical with turbocharger and air to air aftercooler Serial No.*RG6090L005563* Crankshaft lengthwise Rated engine speed 2100 Bore and stroke 4.661" x 5.354" (118.4 mm x 136.0 mm) Compression ratio 16.3 to 1 Displacement 548 cu in (8984 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements and aspirator Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter one paper element and prestrainer Fuel cooler radiator for pump return fuel Muffler vertical Cooling medium temperature control 2 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 75.8 - 82.2 lb/h (34.4 - 37.3 kg/h) High idle: 2175 - 2225 rpm Turbo boost: nominal 21.8 - 26.1 psi (150 - 180 kPa) as measured 23.8 psi (164 kPa)

CHASSIS: Type track layer-rubber tracked Serial No.*RW8230T901181* Track width 91.9" (2335 mm) to 119.5" (3035 mm) Length of track on ground 89.0" (2261 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with full range operator controlled power shift Nominal travel speeds mph (km/h) first 0.91 (1.47) second 1.22 (1.96) third 1.62 (2.61) fourth 2.17 (3.50) fifth 2.44 (3.93) sixth 2.81 (4.53) seventh 3.27 (5.26) eighth 3.77 (6.06) ninth 4.35 (7.00) tenth 5.01 (8.07) eleventh 5.83 (9.38) twelfth 6.72 (10.81) thirteenth 7.92 (12.74) fourteenth 10.60 (17.06) fifteenth 14.12 (22.72) sixteenth 18.91 (30.43) reverse 0.85 (1.37), 2.28 (3.67), 2.88 (4.64), 5.29 (8.51) @ 1500 engine rpm Clutch wet multiple disc hydraulically actuated by foot pedal Brakes wet multiple disc hydraulically actuated by foot pedal Steering electro-hydraulic differential steering controlled by steering wheel Power take-off 1000 rpm at 2003 engine rpm Unladen tractor mass 27250 lb (12360 kg)

DRAWBAR PERFORMANCE

Unballasted - 2100 RPM

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
5th Gear									
144.10 (107.46)	24117 (107.28)	2.24 (3.61)	2149	11.72	0.544 (0.331)	12.88 (2.54)	180 (82)	58 (14)	29.12 (98.61)
6th Gear									
158.32 (118.06)	22799 (101.41)	2.60 (4.19)	2100	8.94	0.514 (0.313)	13.62 (2.68)	182 (83)	59 (15)	29.12 (98.61)
7th Gear									
167.44 (124.86)	19892 (88.48)	3.16 (5.08)	2099	4.96	0.487 (0.296)	14.38 (2.83)	179 (82)	57 (14)	29.12 (98.61)
8th Gear									
171.32 (127.75)	17383 (77.32)	3.70 (5.95)	2099	3.43	0.475 (0.289)	14.73 (2.90)	180 (82)	59 (15)	29.13 (98.65)
9th Gear									
170.72 (127.31)	14812 (65.89)	4.32 (6.96)	2099	2.26	0.478 (0.291)	14.65 (2.89)	183 (84)	62 (17)	29.13 (98.65)
10th Gear									
171.41 (127.82)	12808 (56.97)	5.02 (8.08)	2101	1.63	0.475 (0.289)	14.75 (2.91)	184 (85)	67 (19)	29.13 (98.65)
11th Gear									
168.14 (125.38)	10776 (47.93)	5.85 (9.42)	2100	1.21	0.482 (0.293)	14.53 (2.86)	187 (86)	67 (19)	29.14 (98.68)
12th Gear									
166.06 (123.83)	9214 (40.98)	6.76 (10.88)	2098	0.93	0.493 (0.300)	14.22 (2.80)	189 (87)	68 (20)	29.14 (98.68)
13th Gear									
163.23 (121.72)	7669 (34.11)	7.98 (12.85)	2097	0.73	0.501 (0.305)	13.98 (2.75)	192 (89)	69 (21)	29.15 (98.71)

TRACTOR SOUND LEVEL WITH CAB

dB(A)

At no load in 9th gear	72.6
Transport speed - no load - 16th gear	75.0
Bystander in 16th gear	86.8

TIRES, BALLAST AND WEIGHT

With Ballast

Without Ballast

Track width	18.0 in (455 mm)	18.0 in (455 mm)
Ballast - Cast iron(front)	1735 lb (787 kg)	None
Height of Drawbar	18.5 in (470 mm)	18.5 in (470 mm)
Static Weight with operator	29160 lb(13227 kg)	27425 lb(12440 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests the fuel temperature at the injection pump inlet was maintained at 112°F(44°C). The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1886**, Nebraska Summary 553, December 8, 2006

Roger M. Hoy
Director

M.F. Kocher
V.I. Adamchuk
J.A. Smith
Board of Tractor Test Engineers

DRAWBAR PERFORMANCE
Unballasted - 1800 RPM
MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
5th Gear									
145.44 (108.45)	24350 (108.31)	2.24 (3.60)	2144	11.54	0.543 (0.331)	12.89 (2.54)	180 (82)	58 (14)	29.12 (98.61)
6th Gear									
158.01 (117.83)	23207 (103.23)	2.55 (4.11)	2084	10.02	0.516 (0.314)	13.56 (2.67)	183 (84)	60 (16)	29.12 (98.61)
7th Gear									
172.85 (128.89)	21717 (96.60)	2.98 (4.80)	2031	7.09	0.483 (0.294)	14.49 (2.85)	181 (83)	58 (14)	29.13 (98.65)
8th Gear									
182.88 (136.37)	20543 (91.38)	3.34 (5.37)	1949	6.10	0.469 (0.285)	14.94 (2.94)	187 (86)	60 (16)	29.13 (98.65)
9th Gear									
192.60 (143.62)	19892 (88.48)	3.63 (5.84)	1825	5.55	0.458 (0.279)	15.29 (3.01)	193 (89)	64 (18)	29.13 (98.65)
10th Gear									
195.50 (145.78)	17456 (77.65)	4.20 (6.76)	1800	3.91	0.452 (0.275)	15.50 (3.05)	197 (92)	67 (19)	29.13 (98.65)
11th Gear									
197.11 (146.99)	14923 (66.38)	4.95 (7.97)	1799	2.42	0.446 (0.271)	15.69 (3.09)	199 (93)	67 (19)	29.14 (98.68)
12th Gear									
197.75 (147.46)	12888 (57.33)	5.75 (9.26)	1799	1.62	0.447 (0.272)	15.65 (3.08)	201 (94)	68 (20)	29.15 (98.71)
13th Gear									
196.51 (146.54)	10819 (48.13)	6.81 (10.96)	1798	1.16	0.451 (0.274)	15.54 (3.06)	202 (94)	70 (21)	29.15 (98.71)
14th Gear									
186.84 (139.32)	7654 (34.05)	9.15 (14.73)	1796	0.72	0.471 (0.287)	14.86 (2.93)	207 (97)	73 (23)	29.17 (98.78)

DRAWBAR PERFORMANCE
Ballasted - 1800 RPM
MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
5th Gear									
152.79 (113.94)	26901 (119.66)	2.13 (3.43)	2082	13.62	0.534 (0.325)	13.12 (2.58)	180 (82)	52 (11)	29.12 (98.61)
6th Gear									
167.95 (125.24)	25154 (111.89)	2.50 (4.03)	2027	9.52	0.500 (0.304)	14.00 (2.76)	182 (83)	52 (11)	29.12 (98.61)
7th Gear									
183.02 (136.48)	23326 (103.76)	2.94 (4.74)	1983	6.42	0.465 (0.283)	15.04 (2.96)	181 (83)	52 (11)	29.12 (98.61)
8th Gear									
191.41 (142.73)	21668 (96.38)	3.31 (5.33)	1910	5.18	0.454 (0.276)	15.42 (3.04)	183 (84)	53 (12)	29.12 (98.61)
9th Gear									
197.71 (147.43)	20362 (90.57)	3.64 (5.86)	1801	4.24	0.445 (0.270)	15.75 (3.10)	188 (87)	53 (12)	29.12 (98.61)
10th Gear									
200.37 (149.42)	17623 (78.39)	4.26 (6.86)	1801	2.74	0.440 (0.267)	15.93 (3.14)	189 (87)	53 (12)	29.12 (98.61)
11th Gear									
199.21 (148.55)	14955 (66.52)	5.00 (8.04)	1800	1.93	0.443 (0.269)	15.82 (3.12)	190 (88)	53 (12)	29.12 (98.61)
12th Gear									
198.25 (147.84)	12835 (57.09)	5.79 (9.32)	1803	1.45	0.445 (0.271)	15.75 (3.10)	189 (87)	53 (12)	29.12 (98.61)
13th Gear									
195.57 (145.84)	10726 (47.71)	6.84 (11.00)	1801	1.22	0.449 (0.273)	15.59 (3.07)	192 (89)	53 (12)	29.12 (98.61)
14th Gear									
186.55 (139.11)	7614 (33.87)	9.19 (14.79)	1800	0.82	0.471 (0.287)	14.85 (2.93)	195 (91)	53 (12)	29.12 (98.61)

