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Test 1745: John Deere 8200T Dieel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1745—SUMMARY 261

JOHN DEERE 8200T DIESEL

16 SPEED

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

Dates of Test: April 10 - May 1, 1998

Manufacturer: John Deere Tractor Works, P.O. Box 270, Waterloo, Iowa 50704

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—1007 rpm)					
181.92 (135.66)	2200	10.58 (40.03)	0.410 (0.249)	17.20 (3.39)	
Maximum Power (2 hours)					
201.69 (150.40)	2000	10.87 (41.15)	0.380 (0.231)	18.55 (3.65)	
VARYING POWER AND FUEL CONSUMPTION					
181.92 (135.66)	2200	10.58 (40.03)	0.410 (0.249)	17.20 (3.39)	Air temperature
158.48 (118.18)	2256	9.78 (37.03)	0.435 (0.265)	16.20 (3.19)	76°F (24°C)
119.42 (89.05)	2266	8.08 (30.59)	0.477 (0.290)	14.78 (2.91)	Relative humidity
79.85 (59.55)	2275	6.21 (23.51)	0.458 (0.334)	12.86 (2.53)	49%
40.37 (30.10)	2287	4.38 (16.58)	0.765 (0.466)	9.21 (1.82)	Barometer
1.00 (0.75)	2294	2.81 (10.63)	19.789 (12.037)	0.36 (0.07)	29.09"Hg (98.51 kPa)

Maximum Torque 659 lb.-ft. (893 Nm) at 1000 rpm
Maximum Torque Rise 51.9%
Torque rise at 1801 engine rpm 31%

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									
155.02 (115.60)	12591 (56.01)	4.62 (7.43)	2197	2.48	0.480 (0.292)	14.70 (2.90)	190 (88)	57 (14)	29.03 (98.31)
75% of Pull at Maximum Power—9th Gear									
120.50 (89.86)	9424 (41.92)	4.80 (7.72)	2258	1.48	0.523 (0.318)	13.48 (2.66)	191 (88)	60 (16)	29.00 (98.21)
50% of Pull at Maximum Power—9th Gear									
81.31 (60.63)	6296 (28.00)	4.84 (7.79)	2267	0.86	0.626 (0.381)	11.27 (2.22)	185 (85)	62 (17)	29.01 (98.24)
75% of Pull at Reduced Engine Speed—11th Gear									
120.47 (89.84)	9415 (41.88)	4.80 (7.72)	1769	1.33	0.454 (0.276)	15.33 (3.06)	190 (88)	62 (17)	29.01 (98.24)
50% of Pull at Reduced Engine Speed—11th Gear									
81.34 (60.65)	6295 (28.00)	4.85 (7.80)	1775	0.78	0.525 (0.320)	13.43 (2.64)	186 (86)	62 (17)	29.01 (98.24)

FUEL OIL and TIME: Fuel No. 2 Diesel
Cetane No. 50.6 **Specific gravity converted to 60°/60° F (15°/15°C)** 0.8471 **Fuel weight** 7.053 lbs/gal (0.845 kg/l) **Oil SAE** 15W-40 **API service classification** CD, CE, CF-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Total time engine was operated** 26.5 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** *RG6081H039771* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.56" × 5.06" (115.8 mm × 128.5 mm) **Compression ratio** 16.5 to 1 **Displacement** 496 cu in (8132 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 return fuel **Muffler** vertical **Cooling medium temperature control** two thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: **Fuel rate:** 71.4-78.9 lb/h (32.4-35.8 kg/h) **High idle:** 2275-2325 rpm **Turbo boost** nominal 16.1-20.5 psi (111-141 kPa) as measured 19.5 psi (134 kPa)

CHASSIS: **Type** Tracklayer-rubber tracked **Serial No.** *RW8200T902014* **Tread width** 60.0" (1524 mm) to 88.0" (2235 mm) **Length of track on ground** 89.0" (2260 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.16 (1.87) second 1.49 (2.39) third 1.89 (3.04) fourth 2.41 (3.88) fifth 2.92 (4.70) sixth 3.30 (5.31) seventh 3.73 (6.01) eighth 4.21 (6.78) ninth 4.75 (7.65) tenth 5.36 (8.63) eleventh 6.07 (9.77) twelfth 6.85 (11.02) thirteenth 8.71 (14.02) fourteenth 11.13 (17.91) fifteenth 14.17 (22.80) sixteenth 18.10 (29.13) reverse 1.01 (1.63), 2.55 (4.10), 2.88 (4.63), 5.53 (8.90) — 1600 engine rpm **Clutch** multiple wet 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 2180 engine rpm **Unladen tractor mass** 24430 lb (11080 kg)

DRAWBAR PERFORMANCE (Unballasted) **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/kWh)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd Gear									
104.18 (77.69)	23720 (105.51)	1.65 (2.63)	2254	14.74	0.586 (0.356)	12.04 (2.37)	184 (84)	52 (11)	29.03 (98.31)
4th Gear									
126.18 (94.09)	22132 (98.45)	2.14 (3.44)	2193	10.97	0.528 (0.321)	13.36 (2.63)	188 (86)	54 (12)	29.03 (98.31)
5th Gear									
149.13 (111.21)	21817 (97.05)	2.56 (4.13)	2174	11.03	0.502 (0.305)	14.05 (2.77)	188 (87)	56 (13)	29.04 (98.34)
6th Gear									
158.18 (117.95)	21226 (94.42)	2.79 (4.50)	2073	9.88	0.479 (0.291)	14.74 (2.90)	192 (89)	56 (13)	29.04 (98.34)
7th Gear									
166.33 (124.03)	20015 (89.03)	3.12 (5.02)	2000	8.02	0.459 (0.279)	15.37 (3.03)	191 (88)	57 (14)	29.04 (98.34)
8th Gear									
170.63 (127.24)	17737 (78.90)	3.61 (5.81)	1999	5.51	0.449 (0.273)	15.72 (3.10)	192 (89)	57 (14)	29.04 (98.34)
9th Gear									
172.00 (128.26)	15562 (69.22)	4.14 (6.67)	2001	3.91	0.445 (0.271)	15.84 (3.12)	193 (89)	57 (14)	29.03 (98.31)
10th Gear									
171.85 (128.15)	13655 (60.74)	4.72 (7.60)	1999	2.86	0.442 (0.269)	15.95 (3.14)	194 (90)	58 (14)	29.02 (98.27)
11th Gear									
170.82 (127.38)	11895 (52.91)	5.39 (8.67)	2001	2.33	0.448 (0.272)	15.75 (3.10)	194 (90)	59 (15)	29.02 (98.27)
12th Gear									
167.84 (125.16)	10292 (45.78)	6.12 (9.84)	2002	1.72	0.454 (0.276)	15.53 (3.06)	192 (89)	59 (15)	29.01 (98.24)
13th Gear									
162.00 (120.80)	7764 (34.54)	7.82 (12.59)	2001	1.09	0.469 (0.285)	15.03 (2.96)	195 (91)	59 (15)	29.01 (98.24)

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
At 75% load in 9th Gear	76.7
Bystander in 16th gear	90.7

TRACKS, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Track Width	16.0 in (405 mm)	16.0 in (405 mm)
Ballast —Cast iron—Front (total)	995 lb (451 kg)	None
Height of Drawbar	21.0 in (535 mm)	18.0 in (455 mm)
Static Weight with operator	25590 lb (11607 kg)	24595 lb (11156 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

NOTE: The 8200T engine has an electronic control system which provides a vehicle protection system to avoid overloading the drive train. This system provides two different engine power levels. The engine produces 160 PTO Hp when the transmission is in gears 1 through 4 and the PTO is not engaged. The engine produces 180 PTO Hp in all other applications.

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 return was maintained at 162°F (72°C). The performance results on this summary were taken from OECD tests conducted under the Code II Test Code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1745**, Summary 261, May 26, 1998.

LEONARD L. BASHFORD
Director

M. F. KOCHER
R. D. GRISSO
G. J. HOFFMAN
Board of Tractor Test Engineers

DRAWBAR PERFORMANCE (Ballasted at 2000 RPM)
MAXIMUM POWER IN SELECTED GEARS

107.98 (80.52)	24590 (109.38)	1.65 (2.65)	2252	14.81	3rd Gear 0.581 (0.354)	12.13 (2.39)	185 (85)	59 (15)	28.99 (98.17)
127.93 (95.40)	22611 (100.58)	2.12 (3.41)	2166	10.60	4th Gear 0.524 (0.319)	13.47 (2.65)	190 (88)	64 (18)	28.99 (98.17)
150.29 (112.07)	22023 (97.96)	2.56 (4.12)	2142	10.02	5th Gear 0.499 (0.304)	14.13 (2.78)	188 (86)	69 (21)	29.00 (98.21)
159.32 (118.81)	21544 (95.83)	2.77 (4.47)	2049	9.55	6th Gear 0.476 (0.290)	14.82 (2.92)	186 (86)	71 (22)	29.00 (98.21)
166.72 (124.32)	19749 (87.85)	3.17 (5.09)	2002	6.72	7th Gear 0.456 (0.277)	15.46 (3.05)	187 (86)	72 (22)	28.99 (98.17)
168.79 (125.87)	17363 (77.23)	3.65 (5.87)	2002	4.87	8th Gear 0.453 (0.275)	15.58 (3.07)	187 (86)	73 (23)	28.98 (98.14)
170.26 (126.96)	15330 (68.19)	4.17 (6.70)	2001	3.55	9th Gear 0.446 (0.271)	15.83 (3.12)	190 (88)	73 (23)	28.97 (98.10)
169.87 (126.67)	13420 (59.70)	4.75 (7.64)	2003	2.65	10th Gear 0.449 (0.273)	15.72 (3.10)	189 (87)	75 (24)	28.96 (98.07)
167.01 (124.54)	11592 (51.56)	5.40 (8.69)	2000	1.96	11th Gear 0.454 (0.276)	15.52 (3.06)	191 (88)	75 (24)	28.95 (98.04)
163.37 (121.83)	9988 (44.43)	6.13 (9.87)	2003	1.57	12th Gear 0.468 (0.285)	15.07 (2.97)	195 (90)	76 (24)	28.94 (98.00)
162.10 (120.88)	7742 (34.44)	7.85 (12.64)	2005	1.02	13th Gear 0.471 (0.286)	14.99 (2.95)	195 (90)	77 (25)	28.93 (97.97)

DRAWBAR PERFORMANCE (Ballasted at 2200 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)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
107.88 (80.45)	24574 (109.31)	1.65 (2.65)	2252	14.81	3rd Gear 0.583 (0.354)	12.11 (2.38)	184 (84)	59 (15)	28.99 (98.17)
127.77 (95.28)	21664 (96.36)	2.21 (3.56)	2202	8.23	4th Gear 0.523 (0.318)	13.49 (2.66)	189 (87)	62 (17)	28.99 (98.17)
149.76 (111.68)	20812 (92.58)	2.70 (4.34)	2197	7.48	5th Gear 0.494 (0.300)	14.28 (2.81)	187 (86)	67 (19)	28.99 (98.17)
151.79 (113.19)	18292 (81.36)	3.11 (5.01)	2196	5.38	6th Gear 0.488 (0.297)	14.44 (2.85)	191 (88)	70 (21)	29.00 (98.21)
152.60 (113.79)	15965 (71.01)	3.58 (5.77)	2201	3.99	7th Gear 0.485 (0.295)	14.54 (2.87)	185 (85)	72 (22)	29.00 (98.21)
152.42 (113.66)	14000 (62.27)	4.08 (6.57)	2199	3.02	8th Gear 0.487 (0.296)	14.50 (2.86)	189 (87)	73 (23)	28.98 (98.14)
150.90 (112.52)	12224 (54.37)	4.63 (7.45)	2194	2.19	9th Gear 0.492 (0.300)	14.32 (2.82)	191 (88)	74 (23)	28.96 (98.07)
150.01 (111.87)	10718 (47.68)	5.25 (8.45)	2194	1.72	10th Gear 0.491 (0.299)	14.35 (2.83)	189 (87)	74 (23)	28.96 (98.07)
148.98 (111.10)	9336 (41.53)	5.98 (9.63)	2202	1.41	11th Gear 0.494 (0.301)	14.27 (2.81)	187 (86)	76 (24)	28.96 (98.07)
145.50 (108.50)	8047 (35.79)	6.78 (10.91)	2205	1.10	12th Gear 0.507 (0.308)	13.91 (2.74)	185 (85)	75 (24)	28.95 (98.04)
138.02 (102.92)	5988 (26.63)	8.64 (13.91)	2202	0.79	13th Gear 0.532 (0.324)	13.25 (2.61)	190 (88)	77 (25)	28.93 (97.97)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

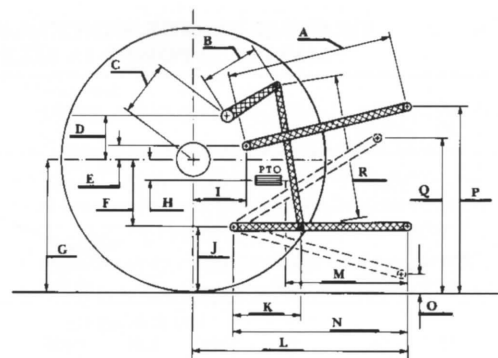
Quick Attach: yes

Maximum Force Exerted Through Whole Range: 15749 lbs (70.1 kN)

i) Opening pressure of relief valve: NA
Sustained pressure with pump stalled: 2890 psi (199 bar)

ii) Pump delivery rate at minimum pressure: 31.1 GPM (117.7 l/min)

iii) Pump delivery rate at maximum
hydraulic power: 29.4 GPM (111.3 l/min)
Delivery pressure: 2550 psi (176 bar)
Power: 43.7 HP (32.6 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

THREE POINT HITCH PERFORMANCE (SAE Static Test)

Observed Maximum Pressure psi (bar) 2890 (199)
Location lift cylinder
Hydraulic oil Temperature °F (°C) 148 (64)
Location hydraulic sump
Category III
Quick Attach yes

As per current SAE test procedures

Hitch point distance					
to ground level in. (mm)	8.0 (203)	16.1 (408)	24.1 (613)	32.1 (814)	40.0 (1016)
Lift force on frame lb.	15904	15964	16354	16348	15410
" " " " (kN)	(70.7)	(71.0)	(72.8)	(72.7)	(68.6)

As per current ASAE test procedures

Hitch point distance					
to ground level in. (mm)	8.0 (203)	16.1 (408)	24.1 (613)	32.1 (814)	40.0 (1016)
Lift force on frame lb.	17671	17634	18059	18053	16981
" " " " (kN)	(78.6)	(78.4)	(80.3)	(80.3)	(75.5)

	inch	mm
A	28.9	733
B	19.5	495
C	22.9	582
D	22.2	565
E	10.2	260
F	11.0	280
G	33.6	853
H	3.2	81
I	15.6	395
J	22.6	573
K	28.3	718
L	48.5	1231
*L'	52.0	1320
M	25.5	647
N	41.6	1056
O	8.0	203
P	40.8	1037
Q	39.1	993
R	42.9	1089

*L' to end of Quick Attach



JOHN DEERE 8200T DIESEL

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