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January 1998

Test 1746: John Deere 8300T Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1746—SUMMARY 262

JOHN DEERE 8300T DIESEL

16 SPEED

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

Dates of Test: April 9 - May 1, 1998

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

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 30.5 hours.

ENGINE: Make John Deere Diesel Type six cylinder vertical with turbocharger and air to air intercooler Serial No. *RG6081H039762* 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: 79.6-87.1 lb/h (36.1-39.5 kg/h) High idle: 2275-2325 rpm Turbo boost nominal 18.4-22.8 psi (127-157 kPa) as measured 20.9 psi (144 kPa)

CHASSIS: Type Tracklayer-rubber tracked Serial No. *RW8300T902031* 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 25010 lb (11344 kg)

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)					
204.00 (152.13)	2200	11.94 (45.20)	0.413 (0.251)	17.09 (3.37)	
Maximum Power (2 hours)					
226.19 (168.67)	2000	12.26 (46.43)	0.382 (0.233)	18.44 (3.63)	
VARYING POWER AND FUEL CONSUMPTION					
204.00 (152.13)	2000	11.94 (45.20)	0.413 (0.251)	17.09 (3.37)	Air temperature
177.95 (132.70)	2256	10.97 (41.54)	0.435 (0.265)	16.22 (3.19)	75°F (24°C)
134.00 (99.93)	2267	8.93 (33.81)	0.470 (0.286)	15.00 (2.96)	Relative humidity
89.77 (66.94)	2276	6.76 (25.60)	0.531 (0.323)	13.27 (2.61)	49%
44.94 (33.51)	2289	4.68 (17.71)	0.734 (0.447)	9.59 (1.89)	Barometer
1.00 (0.75)	2297	2.89 (10.95)	20.369 (12.390)	0.35 (0.07)	28.93"Hg (97.97 kPa)

Maximum Torque 689 lb.-ft. (934 Nm) at 1101 rpm
Maximum Torque Rise 41.7%
Torque rise at 1799 engine rpm 32%

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									
175.88 (131.16)	14316 (63.68)	4.61 (7.41)	2196	2.71	0.473 (0.288)	14.91 (2.94)	187 (86)	60 (16)	28.97 (98.10)
75% of Pull at Maximum Power—9th Gear									
138.52 (103.29)	10823 (48.14)	4.80 (7.72)	2258	1.56	0.505 (0.307)	13.97 (2.75)	188 (86)	62 (17)	28.97 (98.10)
50% of Pull at Maximum Power—9th Gear									
93.36 (69.62)	7215 (32.09)	4.85 (7.81)	2268	0.85	0.593 (0.361)	11.90 (2.34)	183 (84)	62 (17)	28.98 (98.14)
75% of Pull at Reduced Engine Speed—11th Gear									
138.51 (103.29)	10819 (48.13)	4.80 (7.73)	1768	1.63	0.448 (0.273)	15.73 (3.10)	190 (88)	62 (17)	28.98 (98.14)
50% of Pull at Reduced Engine Speed—11th Gear									
93.75 (69.91)	7221 (32.12)	4.87 (7.84)	1781	0.85	0.499 (0.304)	14.13 (2.78)	186 (86)	62 (17)	28.98 (98.14)

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/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
111.02 (82.79)	25207 (112.13)	1.65 (2.66)	2254	14.57	3rd Gear 0.577 (0.351)	12.22 (2.41)	184 (84)	51 (11)	28.98 (98.14)
132.30 (98.66)	23166 (103.05)	2.14 (3.45)	2171	9.94	4th Gear 0.522 (0.318)	13.51 (2.66)	186 (85)	52 (11)	28.98 (98.14)
156.00 (116.33)	23083 (102.68)	2.53 (4.08)	2113	9.62	5th Gear 0.489 (0.297)	14.43 (2.84)	186 (86)	56 (13)	29.00 (98.21)
174.52 (130.14)	22873 (101.74)	2.86 (4.60)	2118	9.73	6th Gear 0.484 (0.294)	14.58 (2.87)	185 (85)	57 (14)	29.00 (98.21)
184.57 (137.63)	22482 (100.00)	3.08 (4.95)	2000	9.09	7th Gear 0.464 (0.282)	15.20 (2.99)	187 (86)	60 (16)	28.97 (98.10)
191.43 (142.75)	19921 (88.61)	3.60 (5.80)	2002	5.87	8th Gear 0.447 (0.272)	15.77 (3.11)	187 (86)	59 (15)	28.98 (98.14)
195.27 (145.61)	17703 (78.75)	4.14 (6.66)	1999	4.06	9th Gear 0.437 (0.266)	16.13 (3.18)	185 (85)	60 (16)	28.97 (98.10)
193.14 (142.02)	15316 (68.13)	4.73 (7.61)	2000	2.86	10th Gear 0.445 (0.271)	15.86 (3.12)	193 (89)	60 (16)	28.97 (98.10)
191.77 (143.00)	13347 (59.37)	5.39 (8.67)	1998	2.17	11th Gear 0.447 (0.272)	15.79 (3.11)	189 (87)	60 (16)	28.98 (98.14)
191.09 (142.50)	11717 (52.12)	6.12 (9.84)	2000	1.71	12th Gear 0.448 (0.272)	15.75 (3.10)	191 (88)	60 (16)	28.98 (98.14)
186.48 (139.06)	8914 (39.65)	7.85 (12.63)	2004	1.09	13th Gear 0.460 (0.280)	15.34 (3.02)	190 (88)	61 (16)	28.98 (98.14)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

NOTE: The 8300T engine has an electronic control system which provides a vehicle protection system to avoid overloading the drive train. This system provides three 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 when the transmission is in 5th gear and the PTO is not engaged. The engine produces 200 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 164°F (74°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. **1746**, Summary 262, May 26, 1998.

LEONARD L. BASHFORD
Director

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

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At 75% load in 9th Gear	77.8
Bystander in 16th gear	90.6

TRACKS, BALLAST AND WEIGHT	With Ballast	Without Ballast
Track Width	24.0 in (610 mm)	24.0 in (610 mm)
Ballast—Cast iron—Front (total)	1350 lb (612 kg)	None
Height of Drawbar	18.0 in (455 mm)	18.0 in (455 mm)
Static Weight with operator	26525 lb (12031 kg)	25175 lb (11419 kg)

DRAWBAR PERFORMANCE (Ballasted at 2000 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)
3rd Gear									
120.91 (90.16)	27819 (123.75)	1.63 (2.62)	2227	14.84	0.560 (0.341)	12.59 (2.48)	184 (84)	47 (8)	29.04 (98.34)
4th Gear									
139.42 (103.97)	25625 (113.99)	2.04 (3.28)	2064	10.00	0.498 (0.303)	14.15 (2.79)	187 (86)	52 (11)	29.04 (98.34)
5th Gear									
162.56 (121.22)	24521 (109.07)	2.49 (4.00)	2042	8.48	0.473 (0.288)	14.91 (2.94)	185 (85)	57 (14)	29.04 (98.34)
6th Gear									
182.12 (135.81)	24656 (109.68)	2.77 (4.46)	2037	9.28	0.469 (0.285)	15.04 (2.96)	184 (84)	59 (15)	29.03 (98.31)
7th Gear									
189.82 (141.55)	22285 (99.13)	3.19 (5.14)	2005	6.06	0.450 (0.274)	15.66 (3.08)	188 (86)	58 (14)	29.02 (98.27)
8th Gear									
193.40 (144.22)	19807 (88.10)	3.66 (5.89)	2000	4.40	0.442 (0.269)	15.96 (3.14)	189 (87)	58 (14)	29.02 (98.27)
9th Gear									
194.40 (144.96)	17380 (77.31)	4.19 (6.75)	2005	3.06	0.439 (0.267)	16.08 (3.17)	186 (86)	58 (14)	29.00 (98.21)
10th Gear									
196.30 (146.38)	15470 (68.81)	4.76 (7.66)	2001	2.38	0.434 (0.264)	16.25 (3.20)	187 (86)	58 (14)	28.99 (98.17)
11th Gear									
192.50 (143.55)	13272 (59.03)	5.44 (8.75)	2008	1.76	0.445 (0.270)	15.86 (3.13)	192 (89)	58 (14)	28.99 (98.17)
12th Gear									
191.50 (142.80)	11713 (52.10)	6.13 (9.87)	1999	1.53	0.446 (0.271)	15.80 (3.11)	196 (91)	55 (13)	29.05 (98.37)
13th Gear									
187.17 (139.57)	8943 (39.78)	7.85 (12.63)	2002	1.06	0.454 (0.276)	15.54 (3.06)	193 (89)	55 (13)	29.05 (98.37)

DRAWBAR PERFORMANCE (Ballasted at 2200 RPM)
MAXIMUM POWER IN SELECTED GEARS

3rd Gear									
118.97 (88.71)	27354 (121.67)	1.63 (2.62)	2232	14.86	0.569 (0.346)	12.40 (2.44)	185 (85)	47 (8)	29.04 (98.34)
4th Gear									
134.41 (100.23)	22224 (98.86)	2.27 (3.65)	2201	6.13	0.506 (0.308)	13.94 (2.75)	182 (83)	55 (13)	29.04 (98.34)
5th Gear									
153.74 (114.64)	20773 (92.40)	2.78 (4.47)	2195	4.91	0.481 (0.293)	14.65 (2.89)	185 (85)	56 (13)	29.04 (98.34)
6th Gear									
174.33 (130.00)	20926 (93.08)	3.12 (5.03)	2198	5.20	0.475 (0.289)	14.85 (2.93)	185 (85)	59 (15)	29.03 (98.31)
7th Gear									
176.63 (131.71)	18435 (82.00)	3.59 (5.78)	2197	3.66	0.469 (0.286)	15.03 (2.96)	185 (85)	59 (15)	29.03 (98.31)
8th Gear									
176.08 (131.31)	16097 (71.60)	4.10 (6.60)	2202	2.68	0.470 (0.286)	15.01 (2.96)	188 (87)	58 (14)	29.01 (98.24)
9th Gear									
176.65 (131.72)	14260 (63.43)	4.65 (7.48)	2197	2.31	0.469 (0.285)	15.03 (2.96)	185 (85)	58 (14)	29.01 (98.24)
10th Gear									
175.21 (130.65)	12456 (55.41)	5.27 (8.49)	2200	1.61	0.471 (0.286)	14.99 (2.95)	188 (86)	58 (14)	29.00 (98.21)
11th Gear									
170.71 (127.30)	10694 (47.57)	5.99 (9.63)	2197	1.30	0.483 (0.294)	14.59 (2.88)	189 (87)	58 (14)	28.99 (98.17)
12th Gear									
171.09 (127.58)	9487 (42.20)	6.76 (10.88)	2197	1.14	0.482 (0.293)	14.63 (2.88)	189 (87)	55 (13)	29.05 (98.37)
13th Gear									
165.69 (123.55)	7189 (31.98)	8.64 (13.91)	2199	0.81	0.499 (0.303)	14.15 (2.79)	188 (86)	55 (13)	29.05 (98.37)

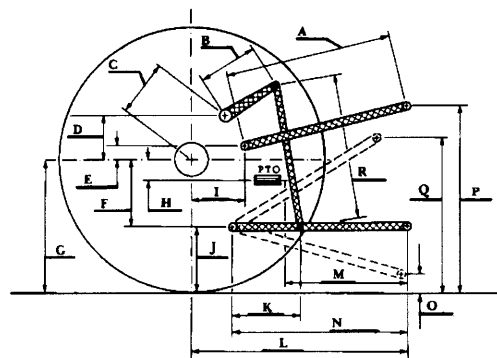
THREE POINT HITCH PERFORMANCE (OECD Static Test)

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: 2950 psi (203 bar)
- ii) Pump delivery rate at minimum pressure: 31.5 GPM (119.2 l/min)
- iii) Pump delivery rate at maximum
hydraulic power: 29.3 GPM (110.9 l/min)
Delivery pressure: 2550 psi (176 bar)
Power: 43.6 HP (32.5 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 8300T DIESEL

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