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January 1997

Test 1731: John Deere 9200 Powrsync Diesel 12 and 24-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1731—SUMMARY 231

JOHN DEERE 9200 POWRSYNC DIESEL

24 SPEED ALSO 12 SPEED

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

Dates of Test: April 24 to May 15, 1997

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—1108 rpm)					
265.72 (198.14)	2100	15.33 (58.04)	0.405 (0.247)	17.33 (3.41)	
Standard Power Take-off Speed (1003 rpm)					
296.92 (221.41)	1900	16.21 (61.38)	0.384 (0.233)	18.31 (3.61)	
Maximum Power (2 Hours)					
296.92 (221.41)	1900	16.21 (61.38)	0.384 (0.233)	18.31 (3.61)	

VARYING POWER AND FUEL CONSUMPTION

265.72 (198.14)	2100	15.33 (58.04)	0.405 (0.247)	17.33 (3.41)	Air temperature
229.55 (117.17)	2135	13.58 (51.42)	0.416 (0.253)	16.90 (3.33)	76°F (24°C)
173.42 (129.32)	2150	10.94 (41.40)	0.443 (0.269)	15.86 (3.12)	Relative humidity
116.17 (86.62)	2164	8.42 (31.86)	0.509 (0.309)	13.80 (2.72)	37%
58.57 (43.68)	2180	5.98 (22.64)	0.717 (0.436)	9.79 (1.93)	Barometer
1.10 (0.82)	2194	3.76 (14.23)	23.947 (14.567)	0.29 (0.06)	29.16" Hg (98.74 kPa)

Maximum Torque 981 lb.-ft. (1330 Nm) at 1051 rpm
Maximum Torque Rise 47.4%
Torque rise at 1699 engine rpm 31%

DRAWBAR PERFORMANCE

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—7th (B1Lo) Gear									
246.46 (183.79)	20951 (93.19)	4.41 (7.10)	2097	2.63	0.440 (0.268)	15.95 (3.14)	201 (94)	68 (20)	29.05 (98.37)
75% of Pull at Maximum Power—7th (B1Lo) Gear									
189.24 (141.11)	15655 (69.64)	4.53 (7.30)	2142	1.91	0.468 (0.285)	15.01 (2.96)	188 (87)	74 (23)	28.98 (98.14)
50% of Pull at Maximum Power—7th (B1Lo) Gear									
128.31 (95.68)	10460 (46.53)	4.60 (7.40)	2160	1.54	0.522 (0.318)	13.44 (2.65)	188 (87)	73 (23)	28.96 (98.07)
75% of Pull at Reduced Engine Speed—12th (C2Lo) Gear									
189.43 (141.26)	15681 (69.75)	4.53 (7.29)	1508	2.00	0.427 (0.260)	16.46 (3.24)	190 (88)	74 (23)	28.97 (98.10)
50% of Pull at Reduced Engine Speed—12th (C2Lo) Gear									
128.36 (95.71)	10457 (46.51)	4.60 (7.41)	1523	1.36	0.456 (0.278)	15.39 (3.03)	179 (82)	73 (23)	28.96 (98.07)

FUEL OIL and TIME: Fuel No. 2 Diesel **Cetane**
No. 50.6 **Specific gravity converted to 60°/60°**
F (15°/15°C) 0.8435 **Fuel weight** 7.023 lbs/gal
(0.842 kg/l) **Oil SAE** 15W-40 **API service**
classification CD, CE, CF-4 **To motor** 9.390 gal
(35.546 l) **Drained from motor** 8.751 gal (33.127 l)
Transmission and hydraulic and final drive
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.** *RG6105H001318*
Crankshaft lengthwise **Rated engine speed** 2100
Bore and stroke (as specified) 5.00" × 5.43" (127.0
mm × 138.0 mm) **Compression ratio** 16.0 to 1
Displacement 640 cu in (10484 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, separate radiators for
hydraulic and transmission oil **Fuel filter** two paper
cartridges **Muffler** vertical **Cooling medium**
temperature control two thermostats and variable
speed fan

ENGINE OPERATING PARAMETERS: **Fuel**
rate: 104.9-109.3 lb/h (47.6-49.6 kg/h) **High idle:**
2175-2225 rpm **Turbo boost** nominal 17.4-21.8 psi
(120-150 kPa) as measured 19.9 psi (137 kPa)

CHASSIS: **Type** four wheel drive with duals
Serial No. *RW9200H001113* **Tread width** rear
60.0" (1524 mm) to 131.8" (3348 mm) front 60.0" (1524
mm) to 131.8" (3348 mm) **Wheel base** 137.8" (3500
mm) **Hydraulic control system** direct engine drive
Transmission selective gear fixed ratio with partial
(2) range operator controlled powershift **Nominal**
travel speeds mph (km/h) first 2.09 (3.36) second
2.50 (4.03) third 2.69 (4.33) fourth 3.22 (5.19) fifth
3.68 (5.92) sixth 4.41 (7.10) seventh 4.45 (7.16) eighth
4.91 (7.90) ninth 5.34 (8.59) tenth 5.73 (9.22) eleventh
5.88 (9.47) twelfth 6.32 (10.17) thirteenth 6.87 (11.06)
fourteenth 7.58 (12.19) fifteenth 7.85 (12.63) sixteenth
8.65 (13.92) seventeenth 9.40 (15.13) eighteenth 10.37
(16.69) nineteenth 10.46 (16.83) twentieth 12.54
(20.18) twenty-first 13.47 (21.67) twenty-second 16.14
(25.98) twenty-third 18.43 (29.66) twenty-fourth 22.10
(35.56) reverse 2.51 (4.03), 3.00 (4.83), 5.34 (8.59),
5.89 (9.47), 6.40 (10.30), 7.06 (11.36) **Clutch** multiple
wet disc hydraulically actuated by foot pedal **Brakes**
wet multiple disc hydraulically actuated by foot pedal
Steering hydrostatic and articulated **Power take-**
off 1000 rpm at 1895 engine rpm **Unladen tractor**
mass 35120 lb (15930 kg)

**DRAWBAR PERFORMANCE AT 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)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
228.72 (170.55)	34057 (151.49)	2.52 (4.05)	2125	9.01	3rd (A2Lo) Gear 0.472 (0.287)	14.89 (2.93)	194 (90)	63 (17)	29.03 (98.31)
239.74 (178.77)	28775 (128.00)	3.12 (5.03)	2097	4.57	4th (A2Hi) Gear 0.455 (0.277)	15.44 (3.04)	198 (92)	72 (22)	29.02 (98.27)
241.08 (179.77)	25063 (111.48)	3.61 (5.81)	2095	3.43	5th (A3Lo) Gear 0.452 (0.275)	15.54 (3.06)	198 (92)	70 (21)	29.04 (98.34)
237.57 (177.16)	20343 (90.49)	4.38 (7.05)	2101	2.54	6th (A3Hi) Gear 0.459 (0.279)	15.29 (3.01)	198 (92)	69 (21)	29.04 (98.34)
246.46 (183.79)	20951 (93.19)	4.41 (7.10)	2097	2.63	7th (B1Lo) Gear 0.440 (0.268)	15.95 (3.14)	201 (94)	68 (20)	29.05 (98.37)
248.66 (185.42)	19108 (84.99)	4.88 (7.85)	2098	2.36	8th (C1Lo) Gear 0.437 (0.266)	16.06 (3.16)	198 (92)	65 (18)	29.06 (98.41)
243.02 (181.22)	17145 (76.26)	5.32 (8.55)	2097	2.00	9th (B1Hi) Gear 0.447 (0.272)	15.71 (3.10)	200 (93)	64 (18)	29.05 (98.37)
246.08 (183.51)	16133 (71.76)	5.72 (9.21)	2099	1.82	10th (B2Lo) Gear 0.442 (0.269)	15.89 (3.13)	200 (93)	62 (17)	29.05 (98.37)
241.99 (180.46)	15433 (68.65)	5.88 (9.46)	2099	1.73	11th (C1Hi) Gear 0.448 (0.272)	15.68 (3.09)	201 (94)	60 (16)	28.46 (96.38)
246.86 (184.08)	14653 (65.18)	6.32 (10.17)	2099	1.63	12th (C2Lo) Gear 0.441 (0.268)	15.94 (3.14)	201 (94)	57 (14)	28.44 (96.31)
243.82 (181.82)	13263 (59.00)	6.89 (11.09)	2103	1.45	13th (B2Hi) Gear 0.448 (0.272)	15.68 (3.09)	201 (94)	57 (14)	28.44 (96.31)
242.65 (180.94)	11985 (53.31)	7.59 (12.22)	2098	1.36	14th (C2Hi) Gear 0.446 (0.271)	15.74 (3.10)	201 (94)	57 (14)	28.44 (96.31)
244.23 (182.12)	11636 (51.76)	7.87 (12.67)	2099	1.36	15th (B3Lo) Gear 0.446 (0.271)	15.75 (3.10)	200 (93)	57 (14)	28.44 (96.31)
242.51 (180.84)	10496 (46.69)	8.66 (13.94)	2093	1.27	16th (C3Lo) Gear 0.449 (0.273)	15.64 (3.08)	200 (93)	57 (14)	28.45 (96.34)

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 temperature of the returned fuel was maintained at 206° F (97°C). The pull in 3rd (A2Lo) gear was limited to avoid tractor bouncing. The performance results on this summary were taken from OECD tests conducted under the Code II Restricted Standard Test Code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1731**, Summary 231, July 9, 1997.

LOUIS I. LEVITICUS
Engineer-in-Charge

L.L. BASHFORD
R.D. GRISSE
M.F. KOCHER
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
At 75% load in 9th (B1Hi) Gear	74.3
Bystander in 24th (D3Hi) Gear	89.7

DRAWBAR PERFORMANCE AT 1900 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)
3rd (A2Lo) Gear								
228.42 (170.33)	33932 (150.93)	2.52 (4.06)	2125	8.78	0.470 (0.286)	14.95 (2.95)	194 (90)	29.03 (98.31)
4th (A2Hi) Gear								
242.81 (181.06)	31507 (140.15)	2.89 (4.65)	1990	7.09	0.458 (0.279)	15.33 (3.02)	200 (93)	29.00 (98.21)
5th (A3Lo) Gear								
259.52 (193.53)	30536 (135.83)	3.19 (5.13)	1895	5.85	0.440 (0.268)	15.95 (3.14)	201 (94)	29.03 (98.31)
6th (A3Hi) Gear								
260.72 (194.42)	24972 (111.08)	3.92 (6.30)	1897	3.52	0.436 (0.265)	16.10 (3.17)	203 (95)	29.04 (98.34)
7th (B1Lo) Gear								
265.86 (198.25)	25210 (112.14)	3.95 (6.36)	1899	3.52	0.427 (0.260)	16.44 (3.24)	205 (96)	29.04 (98.34)
8th (C1Lo) Gear								
269.45 (200.93)	22981 (102.22)	4.40 (7.08)	1902	3.08	0.422 (0.257)	16.63 (3.28)	202 (94)	29.06 (98.41)
9th (B1Hi) Gear								
265.80 (198.21)	20731 (92.22)	4.81 (7.74)	1905	2.54	0.429 (0.261)	16.38 (3.23)	204 (95)	29.05 (98.37)
10th (B2Lo) Gear								
269.19 (200.74)	19550 (86.96)	5.16 (8.31)	1902	2.45	0.423 (0.258)	16.59 (3.27)	204 (95)	29.04 (98.34)
11th (C1Hi) Gear								
267.88 (199.76)	18924 (84.18)	5.31 (8.54)	1903	2.27	0.425 (0.258)	16.53 (3.26)	204 (95)	28.46 (96.38)
12th (C2Lo) Gear								
270.93 (202.03)	17817 (79.25)	5.70 (9.18)	1901	2.00	0.422 (0.257)	16.63 (3.28)	200 (93)	28.44 (96.31)
13th (B2Hi) Gear								
269.44 (200.92)	16243 (72.25)	6.22 (10.01)	1903	1.91	0.422 (0.257)	16.65 (3.28)	203 (95)	28.44 (96.31)
14th (C2Hi) Gear								
268.43 (200.17)	14631 (65.08)	6.88 (11.07)	1906	1.73	0.425 (0.258)	16.53 (3.26)	205 (96)	28.44 (96.31)
15th (B3Lo) Gear								
270.36 (201.61)	14264 (63.45)	7.11 (11.44)	1900	1.59	0.421 (0.256)	16.70 (3.29)	205 (96)	28.45 (96.34)
16th (C3Lo) Gear								
270.36 (201.61)	12904 (57.40)	7.86 (12.64)	1903	1.54	0.422 (0.257)	16.64 (3.28)	204 (95)	28.45 (96.34)
17th (B3Hi) Gear								
266.17 (198.49)	11683 (51.97)	8.54 (13.75)	1900	1.45	0.430 (0.262)	16.31 (3.21)	198 (92)	28.45 (96.34)

TIRES, BALLAST AND WEIGHT

Rear Tires —No., size, ply & psi (kPa)

Front Tires —No., size, ply & psi (kPa)

Height of Drawbar

Static Weight with Operator—Rear
—Front
—Total

Tested Without Ballast

Four 20.8R42; **, 8 (55)

Four 20.8R42; **, 12 (85)

18.5 in (470 mm)

15846 lb (7188 kg)

19438 lb (8817 kg)

35284 lb (16005 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: yes

Maximum Force Exerted Through Whole Range:	13104 lbs	(58.3 kN)
i) Opening pressure of relief valve:	NA	
Sustained pressure of the open relief valve:	2980 psi	(205 bar)
ii) Pump delivery rate at minimum pressure:	44.5 GPM	(168.5 l/min)
iii) Pump delivery rate at maximum		
hydraulic power:	40.7 GPM	(154.1 l/min)
Delivery pressure:	2500 psi	(172 bar)
Power:	59.4 HP	(44.3 kW)

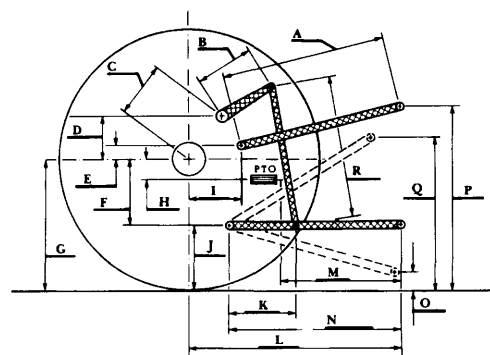
THREE POINT HITCH PERFORMANCE (SAE Static Test)

Observed Maximum Pressure psi. (bar)	2950 (203)
Location	remote outlet
Hydraulic oil temperature °F (°C)	147 (64)
Location	hydraulic sump
Category	III (with 90 mm lift cylinders)
Quick attach	yes

Hitch point distance to ground level in. (mm)	8.0 (203)	16.0 (409)	24.0 (610)	32.0 (813)	40.0 (1010)
Lift force on frame lb	14589	14463	14418	13995	12978
Lift force on frame (kN)	(64.9)	(64.3)	(64.1)	(62.3)	(57.7)

As per current ASAE test procedures

Hitch point distance to ground level in. (mm)	8.0 (203)	16.0 (409)	24.0 (610)	32.0 (813)	40.0 (1010)
Lift force on frame lb.	15715	15580	15531	15076	13980
Lift force on frame (kN)	(69.9)	(69.3)	(69.1)	(67.1)	(62.2)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	30.8	780
B	18.6	472
C	26.2	666
D	24.4	620
E	11.3	288
F	13.8	350
G	35.6	905
H	4.8	122
I	22.7	577
J	21.9	555
K	28.8	731
L	55.3	1405
L'	61.8	1570
M	25.4	645
N	44.0	1117
O	8.0	203
P	48.6	1234
Q	39.1	993
R	44.8	1137

L' to end of Quick Attach



JOHN DEERE 9200 POWRSYNC DIESEL

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