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January 1998

Nebraska Summary 289: John Deere 6310 Powrquad Diesel 16-Speed

Nebraska Tractor Test Lab

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SUMMARY OF OECD TEST 1807—NEBRASKA SUMMARY 289

JOHN DEERE 6310 POWRQUAD 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-1042 rpm)					
81.4 (60.7)	2300	5.08 (19.22)	0.436 (0.265)	16.03 (3.16)	
Standard Power Take-off Speed (1000 rpm)					
83.3 (62.1)	2208	5.04 (19.09)	0.422 (0.257)	16.52 (3.25)	
Maximum Power (2 hours)					
87.4 (65.2)	1900	4.87 (18.42)	0.388 (0.236)	17.97 (3.54)	

VARYING POWER AND FUEL CONSUMPTION

81.4 (60.7)	2300	5.08 (19.22)	0.436 (0.265)	16.03 (3.16)	Air temperature
72.7 (54.2)	2409	4.86 (18.41)	0.467 (0.284)	14.94 (2.94)	72°F (22°C)
55.0 (41.0)	2433	4.15 (15.71)	0.526 (0.320)	13.24 (2.61)	Relative humidity
36.9 (27.5)	2453	3.45 (13.05)	0.653 (0.397)	10.71 (2.11)	33%
18.6 (13.9)	2468	2.61 (9.87)	0.978 (0.595)	7.13 (1.40)	Barometer
--	2481	1.77 (6.69)	--	--	29.2" Hg (98.9 kPa)

Maximum Torque - 267 lb.-ft. (362 Nm) at 1400 rpm
 Maximum Torque Rise - 43.6%
 Torque rise at 1800 engine rpm - 35%

DRAWBAR PERFORMANCE

(Unballasted Front Drive Engaged)

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 8th (1C) Gear									
65.8 (49.1)	5265 (23.41)	4.69 (7.55)	2305	7.1	0.536 (0.326)	13.00 (2.56)	160 (71)	73 (23)	29.5 (99.8)
75% of Pull at Maximum Power 8th (1C) Gear									
52.9 (39.5)	3965 (17.63)	5.00 (8.05)	2421	5.5	0.600 (0.365)	11.62 (2.29)	160 (71)	73 (23)	29.5 (99.8)
50% of Pull at Maximum Power 8th (1C) Gear									
36.1 (26.9)	2635 (11.71)	5.14 (8.28)	2443	3.8	0.733 (0.446)	9.51 (1.87)	154 (68)	73 (23)	29.5 (99.8)
75% of Pull at Reduced Engine Speed 9th (4B) Gear									
52.7 (39.3)	3930 (17.48)	8.09 (13.09)	2246	4.8	0.577 (0.351)	12.08 (2.38)	154 (68)	73 (23)	29.5 (99.8)
50% of Pull at Reduced Engine Speed 9th (4B) Gear									
36.0 (26.8)	2655 (11.80)	8.19 (13.19)	2232	3.3	0.674 (0.410)	10.35 (2.04)	154 (68)	73 (23)	29.5 (99.8)

Location of Test: DLG Testing Station for Agricultural Machinery Max - Eyth - Weg 1, D-64823 Gros-Umstadt, Germany

Dates of Test: June - August, 1998

Manufacturer: Deere & Company, Moline, Illinois, USA

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.838 **Fuel weight** 6.97 lbs/gal (0.836 kg/l) **Oil SAE 0W-40 API service classification** CF-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard J 20 C fluid **Front axle lubricant** John Deere J 20 C fluid.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger **Serial No.** 527071 **Crankshaft** lengthwise **Rated engine speed** 2300 **Bore and stroke** 4.19" x 5.00" (106.5 mm x 127.0 mm) **Compression ratio** 16.9 to 1 **Displacement** 276 cu in (4525 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **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 **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** front wheel assist **Serial No.** 218150 **Tread width** rear 63.0" (1600 mm) to 78.9" (2004 mm) front 59.7" (1516 mm) to 84.1" (2136 mm) **Wheel base** 94.5" (2400 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (4) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.53 (2.46) second 1.84 (2.96) third 2.21 (3.55) fourth 2.70 (4.35) fifth 3.07 (4.94) sixth 3.70 (5.95) seventh 4.42 (7.12) eighth 5.00 (8.05) ninth 5.42 (8.73) tenth 6.02 (9.69) eleventh 7.21 (11.61) twelfth 8.84 (14.23) thirteenth 10.76 (17.31) fourteenth 12.96 (20.85) fifteenth 15.51 (24.97) sixteenth 19.01 (30.59) reverse 1.81 (2.92), 2.18 (3.51), 2.62 (4.21), 3.20 (5.15), 3.64 (5.86), 4.38 (7.05), 5.25 (8.45), 5.93 (9.55), 6.43 (10.35), 7.15 (11.50), 8.56 (13.77), 10.48 (16.87), 12.76 (20.54), 15.37 (24.73), 18.40 (29.61), 22.54 (36.28) **Clutch** multiple wet disc hydraulically operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2143 engine rpm or 1000 rpm at 2208 engine rpm **Unladen tractor mass** 9735 lb (4415 kg)

DRAWBAR PERFORMANCE
(Unballasted Front Drive Engaged)
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)	Barom. inch Hg (kPa)		
6th (2B) Gear									
67.1 (50.0)	9415 (41.88)	2.67 (4.30)	1942	15.0	0.507 (0.308)	13.76 (2.71)	158 (70)	70 (21)	29.5 (99.8)
7th (3B) Gear									
69.7 (52.0)	7990 (35.54)	3.27 (5.27)	1922	12.0	0.489 (0.297)	14.27 (2.81)	162 (72)	70 (21)	29.5 (99.8)
8th (1C) Gear									
70.3 (52.4)	7070 (31.44)	3.73 (6.00)	1897	10.5	0.486 (0.296)	14.35 (2.83)	163 (73)	77 (25)	29.5 (99.8)
9th (4B) Gear									
69.5 (51.8)	6375 (28.36)	4.09 (6.57)	1902	9.4	0.488 (0.297)	14.30 (2.82)	162 (72)	77 (25)	29.5 (99.8)
10th (2C) Gear									
70.7 (52.7)	5775 (25.69)	4.59 (7.39)	1903	8.4	0.482 (0.293)	14.47 (2.85)	163 (73)	77 (25)	29.5 (99.8)
11th (3C) Gear									
71.5 (53.3)	4780 (21.27)	5.61 (9.02)	1909	6.8	0.478 (0.291)	14.60 (2.88)	162 (72)	79 (26)	29.5 (99.8)
12th (4C) Gear									
69.3 (51.7)	3730 (16.59)	6.97 (11.21)	1891	4.5	0.486 (0.296)	14.34 (2.83)	158 (70)	66 (19)	29.5 (99.8)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturers claim of 47.1% torque rise. 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 summary of data from OECD Report No. **1807**, Nebraska Summary 289, August 12, 1999.

Leonard L. Bashford
 Director

M.F. Kocher
 R. D. Grisso
 G.J. Hoffman
 Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
Sound level in 8th(1C) gear	73.0	73.0
Maximum Sound Level Bystander	74.5	74.5

TIRES 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

Two 18.4-38; 8; 12 (80)
 Two 13.6-28; 8; 12 (80)
 20.7 in (525 mm)
 6160 lb (2795 kg)
 3740 lb (1695 kg)
 9900 lb (4490 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

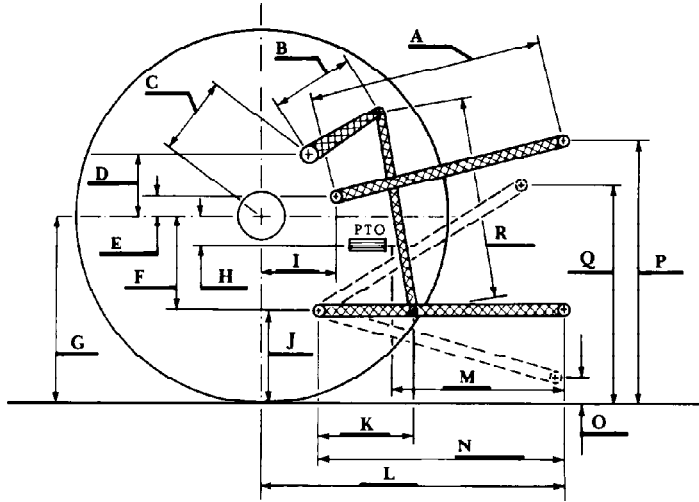
CATEGORY: II

Quick Attach: none

Maximum Force Exerted Through Whole Range: 4810 lbs (21.40 kN) (at the frame)
 5360 lbs (23.85 kN) (at the hitch points)

- i) Opening pressure of relief valve: NA
- Sustained pressure of the open relief valve: 2830 psi (195 bar)
- ii) Pump delivery rate at minimum pressure: 27.8 GPM (105.4 l/min)
- iii) Pump delivery rate at maximum
 - hydraulic power: 24.6 GPM (93.0 l/min)
 - Delivery pressure: 2030 psi (140 bar)
 - Power: 29.1 HP (21.7 kW)

HITCH DIMENSIONS AS TESTED NO LOAD



	inch	mm
A	25.6	650
B	12.0	305
C	19.9	505
D	18.7	475
E	7.4	188
F	8.9	225
G	32.3	820
H	2.8	70
I	18.1	460
J	23.4	595
K	19.8	503
L	42.5	1080
M	21.7	550
N	37.2	945
O	7.9	200
P	47.4	1205
Q	33.9	860
R	32.1	815