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NEBRASKA OECD TRACTOR TEST 1885–SUMMARY 552
JOHN DEERE 8230 DIESEL
16 SPEED

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

Dates of tests: September 20 - October 5, 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 **Front axle lubricant** John Deere Hy-Gard fluid **Total time engine was operated:** 29.5 hours

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger and air to air aftercooler **Serial No.***RG6090L006226* **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 water separator **Fuel cooler** radiator for pump return fuel **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 75.2 - 81.4 lb/h *(34.1 - 36.9 kg/h)* **High idle:** 2175 - 2225 rpm **Turbo boost:** nominal 21.0 - 25.4 psi *(145 - 175 kPa)* as measured 22.9 psi *(158 kPa)*

CHASSIS: Type front wheel assist **Serial No.***RW8230P005318* **Tread width** rear 60.0" *(1524 mm)* to 132.5" *(3368 mm)* front 60.0" *(1524 mm)* to 88.0" *(2235 mm)* **Wheelbase** 120.1" *(3050 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 1.12 *(1.81)* second 1.51 *(2.43)* third 2.01 *(3.24)* fourth 2.69 *(4.33)* fifth 3.02 *(4.86)* sixth 3.48 *(5.60)* seventh 4.05 *(6.51)* eighth 4.66 *(7.50)* ninth 5.39 *(8.67)* tenth 6.21 *(9.99)* eleventh 7.21 *(11.61)* twelfth 8.31 *(13.38)* thirteenth 9.80 *(15.77)* fourteenth 13.12 *(21.12)* fifteenth 17.47 *(28.12)* sixteenth 23.41 *(37.67)* reverse 1.06 *(1.70)*, 2.83 *(4.55)*, 3.57 *(5.74)*, 6.55 *(10.54)*@1500 engine rpm **Clutch** wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 2003 engine rpm **Unladen tractor mass** 21325 lb *(9673 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—1047 rpm)					
203.66 *(151.87)*	2100	11.23 *(42.52)*	0.386 *(0.235)*	18.13 *(3.57)*	
Standard Power Take-off Speed(1000 rpm)					
219.68 *(163.82)*	2005	11.73 *(44.42)*	0.374 *(0.228)*	18.72 *(3.69)*	
Maximum Power (1 hour)					
232.51 *(173.38)*	1800	12.27 *(46.44)*	0.369 *(0.225)*	18.95 *(3.73)*	
VARYING POWER AND FUEL CONSUMPTION					
203.66 *(151.87)*	2100	11.23 *(42.52)*	0.386 *(0.235)*	18.13 *(3.57)*	Air temperature
177.29 *(132.21)*	2155	10.27 *(38.87)*	0.406 *(0.247)*	17.27 *(3.40)*	76°F *(24°C)*
134.17 *(100.05)*	2166	8.54 *(27.12)*	0.446 *(0.271)*	15.71 *(3.09)*	Relative humidity
89.63 *(66.83)*	2175	6.76 *(25.57)*	0.528 *(0.321)*	13.27 *(2.61)*	31%
44.93 *(33.51)*	2187	5.13 *(19.41)*	0.799 *(0.486)*	8.76 *(1.73)*	Barometer
1.25 *(0.93)*	2195	3.43 *(12.97)*	19.186 *(11.670)*	0.36 *(0.07)*	28.73" Hg *(97.29 kPa)*

Maximum torque - 740 lb.-ft. *(1003 Nm)* at 1502 rpm
Maximum torque rise - 45.2%
Torque rise at 1700 engine rpm - 38%

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)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—8th Gear									
180.35 *(134.49)*	14590 *(64.90)*	4.64 *(7.46)*	2101	5.30	0.440 *(0.268)*	15.91 *(3.14)*	185 *(85)*	65 *(18)*	28.82 *(97.60)*
75% of Pull at Maximum Power—8th Gear									
141.24 *(105.33)*	10942 *(48.67)*	4.84 *(7.79)*	2156	3.61	0.478 *(0.291)*	14.64 *(2.88)*	189 *(87)*	82 *(28)*	28.77 *(97.43)*
50% of Pull at Maximum Power—8th Gear									
95.93 *(71.54)*	7302 *(32.48)*	4.93 *(7.93)*	2167	2.37	0.556 *(0.338)*	12.59 *(2.48)*	187 *(86)*	82 *(28)*	28.77 *(97.43)*
75% of Pull at Reduced Engine Speed—10th Gear									
141.21 *(105.30)*	10947 *(48.69)*	4.84 *(7.79)*	1619	3.62	0.453 *(0.275)*	15.47 *(3.05)*	204 *(95)*	84 *(29)*	28.76 *(97.39)*
50% of Pull at Reduced Engine Speed—10th Gear									
95.76 *(71.41)*	7302 *(32.48)*	4.92 *(7.91)*	1625	2.43	0.494 *(0.300)*	14.18 *(2.79)*	189 *(87)*	83 *(28)*	28.76 *(97.39)*

DRAWBAR PERFORMANCE

UNBALLASTED - FRONT DRIVE ENGAGED - 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)*
					6th Gear				
165.70 *(123.56)*	18988 *(84.46)*	3.27 *(5.27)*	2114	10.64	0.475 *(0.289)*	14.75 *(2.91)*	178 *(81)*	54 *(12)*	28.85 *(97.70)*
					7th Gear				
175.55 *(130.90)*	16786 *(74.67)*	3.92 *(6.31)*	2104	8.20	0.452 *(0.275)*	15.49 *(3.05)*	189 *(87)*	70 *(21)*	28.81 *(97.56)*
					8th Gear				
180.35 *(134.49)*	14590 *(64.90)*	4.64 *(7.46)*	2101	5.31	0.440 *(0.268)*	15.91 *(3.14)*	185 *(85)*	65 *(18)*	28.82 *(97.60)*
					9th Gear				
180.21 *(134.38)*	12472 *(55.48)*	5.42 *(8.72)*	2106	3.92	0.441 *(0.269)*	15.86 *(3.12)*	191 *(88)*	69 *(21)*	28.81 *(97.56)*
					10th Gear				
179.77 *(134.05)*	10723 *(47.70)*	6.29 *(10.12)*	2101	3.23	0.438 *(0.266)*	15.99 *(3.15)*	184 *(85)*	58 *(14)*	28.84 *(97.66)*
					11th Gear				
177.37 *(132.27)*	9054 *(40.28)*	7.35 *(11.82)*	2102	2.64	0.442 *(0.269)*	15.83 *(3.12)*	188 *(86)*	63 *(17)*	28.83 *(97.63)*
					12th Gear				
177.22 *(132.15)*	7815 *(34.76)*	8.50 *(13.68)*	2102	2.10	0.446 *(0.272)*	15.69 *(3.09)*	195 *(91)*	71 *(22)*	28.81 *(97.56)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 8th gear	72.0	72.0
Transport speed - no load - 16th gear		75.0
Bystander in 16th gear		87.2

TIRES, BALLAST AND WEIGHT	With Ballast	Without Ballast
Rear Tires - No., size, ply & psi(*kPa*)	Four 480/80R46;***;13(*60*)	Two 480/80R46;***;19(*130*)
Ballast - Duals (total)	1770 lb *(803 kg)*	None
- Cast Iron (total)	3135 lb *(1422 kg)*	None
Front Tires - No., size, ply & psi(*kPa*)	Two 420/90R30;**;21(*90*)	Two 420/90R30;**;19(*130*)
Ballast - Liquid (total)	None	None
- Cast Iron (total)	785 lb *(356 kg)*	None
Height of Drawbar	22.0 in (*560 mm*)	22.0 in (*560 mm*)
Static Weight with operator - Rear	17090 lb *(7752 kg)*	12570 lb *(5702 kg)*
- Front	10100 lb *(4581 kg)*	8930 lb (*4050 kg*)
- Total	27190 lb(*12333 kg*)	21500 lb (*9752 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 117°F*(47°C)*. The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1885**, Nebraska Summary 552, December 8, 2006.

Roger M. Hoy
Director

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

DRAWBAR PERFORMANCE
UNBALLASTED-FRONT DRIVE ENGAGED - 1800 RPM
MAXIMUM POWER IN SELECTED GEARS

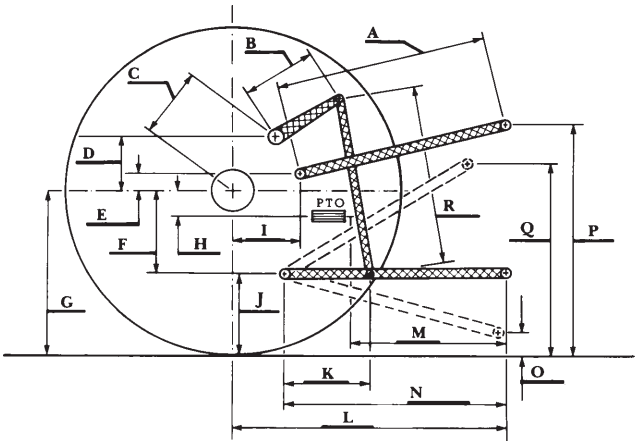
Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					6th Gear				
166.66 *(124.28)*	19125 *(85.07)*	3.27 *(5.26)*	2108	10.70	0.470 *(0.286)*	14.89 *(2.93)*	178 *(81)*	54 *(12)*	28.85 *(97.70)*
					7th Gear				
180.99 *(134.97)*	17523 *(77.95)*	3.87 *(6.23)*	2071	7.80	0.443 *(0.269)*	15.81 *(3.11)*	179 *(82)*	55 *(13)*	28.85 *(97.70)*
					8th Gear				
189.35 *(141.19)*	16199 *(72.06)*	4.38 *(7.05)*	2019	6.51	0.436 *(0.265)*	16.08 *(3.17)*	190 *(88)*	67 *(19)*	28.82 *(97.60)*
					9th Gear				
198.74 *(148.20)*	15282 *(67.98)*	4.88 *(7.85)*	1928	5.52	0.425 *(0.259)*	16.46 *(3.24)*	197 *(91)*	68 *(20)*	28.82 *(97.60)*
					10th Gear				
206.30 *(153.84)*	14575 *(64.83)*	5.31 *(8.54)*	1805	4.93	0.416 *(0.253)*	16.84 *(3.32)*	193 *(90)*	60 *(16)*	28.83 *(97.63)*
					11th Gear				
206.48 *(153.97)*	12458 *(55.41)*	6.22 *(10.00)*	1801	3.73	0.414 *(0.252)*	16.93 *(3.33)*	200 *(93)*	61 *(16)*	28.83 *(97.63)*
					12th Gear				
206.09 *(153.68)*	10713 *(47.65)*	7.21 *(11.61)*	1801	2.98	0.418 *(0.254)*	16.74 *(3.30)*	201 *(94)*	72 *(22)*	28.80 *(97.53)*
					13th Gear				
205.72 *(153.41)*	9024 *(40.14)*	8.55 *(13.76)*	1799	2.44	0.418 *(0.254)*	16.76 *(3.30)*	201 *(94)*	74 *(23)*	28.80 *(97.53)*

DRAWBAR PERFORMANCE
BALLASTED - FRONT DRIVE ENGAGED - 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)*	Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					4th Gear				
165.81 *(123.64)*	24645 *(109.63)*	2.52 *(4.06)*	2095	9.57	0.480 *(0.292)*	14.60 *(2.88)*	185 *(85)*	64 *(18)*	29.01 *(98.24)*
					5th Gear				
176.58 *(131.67)*	23439 *(104.26)*	2.83 *(4.55)*	2053	7.86	0.460 *(0.280)*	15.23 *(3.00)*	186 *(86)*	63 *(17)*	29.02 *(98.27)*
					6th Gear				
190.23 *(141.86)*	22473 *(99.97)*	3.17 *(5.11)*	1967	6.26	0.437 *(0.266)*	16.02 *(3.15)*	187 *(86)*	62 *(17)*	29.03 *(98.31)*
					7th Gear				
200.02 *(149.15)*	21665 *(96.37)*	3.46 *(5.57)*	1834	5.60	0.431 *(0.262)*	16.23 *(3.20)*	198 *(92)*	61 *(16)*	29.03 *(98.31)*
					8th Gear				
203.72 *(151.91)*	19210 *(85.45)*	3.98 *(6.40)*	1800	4.18	0.422 *(0.257)*	16.60 *(3.27)*	201 *(94)*	61 *(16)*	29.04 *(98.34)*
					9th Gear				
209.32 *(156.09)*	16890 *(75.13)*	4.65 *(7.48)*	1802	3.18	0.413 *(0.251)*	16.97 *(3.34)*	196 *(91)*	60 *(16)*	29.05 *(98.37)*
					10th Gear				
209.13 *(155.95)*	14554 *(64.74)*	5.39 *(8.67)*	1802	2.62	0.413 *(0.251)*	16.97 *(3.34)*	199 *(93)*	60 *(16)*	29.06 *(98.41)*
					11th Gear				
207.37 *(154.63)*	12381 *(55.07)*	6.28 *(10.11)*	1800	2.15	0.414 *(0.252)*	16.90 *(3.33)*	196 *(91)*	60 *(16)*	29.07 *(98.44)*
					12th Gear				
206.43 *(153.93)*	10635 *(47.31)*	7.28 *(11.71)*	1803	1.84	0.417 *(0.254)*	16.78 *(3.31)*	198 *(92)*	60 *(16)*	29.08 *(98.48)*
					13th Gear				
204.59 *(152.56)*	8929 *(39.72)*	8.59 *(13.83)*	1800	1.54	0.422 *(0.256)*	16.61 *(3.27)*	205 *(96)*	60 *(16)*	29.08 *(98.48)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III		
Quick Attach: Yes		
Lift cylinders:	2 x 90 mm	2x100 mm
Maximum force exerted through whole range:	12588 lbs *(56.0 kN)*	15683 lbs *(69.8 kN)*
	63 cc pump	85 cc pump
i) Sustained pressure at compensator cutoff:	2990 psi *(206 bar)*	2970 psi *(205 bar)*
	two outlet sets combined	**three outlet sets combined**
ii) Pump delivery rate at minimum pressure and rated engine speed:	45.6 GPM *(172.6 l/min)*	61.3 GPM *(232.0 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	45.6 GPM *(172.6 l/min)*	60.5 GPM *(229.0 l/min)*
Delivery pressure:	2474 psi *(171 bar)*	2409 psi *(166 bar)*
Power:	65.8 HP *(49.1 kW)*	85.0 HP *(63.4 kW)*
	single outlet set	
ii) Pump delivery rate at minimum pressure and rated engine speed:	40.7 GPM *(154.1 l/min)*	39.1 GPM *(148.0 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	39.5 GPM *(149.5 l/min)*	37.6 GPM *(142.3 l/min)*
Delivery pressure:	2098 psi *(145 bar)*	2148 psi *(148 bar)*
Power:	48.3 HP *(36.1 kW)*	47.1 HP *(35.1 kW)*



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	29.3	*744*
B	20.5	*520*
C	20.9	*532*
D	18.9	*480*
E	7.3	*185*
F	14.4	*365*
G	35.6	*905*
H	7.9	*200*
I	20.7	*525*
J	21.2	*540*
K	28.7	*730*
L	49.3	*1252*
*L'	53.4	*1357*
M	22.4	*569*
N	42.6	*1081*
O	9.0	*230*
P	43.2	*1099*
Q	39.4	*1001*
R	42.8	*1087*

*L' to Quick Attach ends

JOHN DEERE 8230 DIESEL

Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln