2011

Test 1988: John Deere 6430 Premium

Nebraska Tractor Test Lab
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NEBRASKA OECD TRACTOR TEST 1988—SUMMARY 756
JOHN DEERE 6430 PREMIUM DIESEL
16 SPEED

CHASSIS SERIAL NUMBERS 634684 AND HIGHER

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-1036 rpm)					
105.57 *(78.72)*	2299	6.51 *(24.64)*	0.435 *(0.265)*	16.22 *(3.19)*	
Standard Power Take-off Speed (1000 rpm)					
110.69 *(82.54)*	2219	6.61 *(25.02)*	0.421 *(0.256)*	16.75 *(3.30)*	
Maximum Power (1 hour)					
117.32 *(87.49)*	1899	6.60 *(24.99)*	0.397 *(0.242)*	17.77 *(3.50)*	
VARYING POWER AND FUEL CONSUMPTION					
105.57 *(78.72)*	2299	6.51 *(24.64)*	0.435 *(0.265)*	16.22 *(3.19)*	Air temperature
92.78 *(69.19)*	2376	6.09 *(23.07)*	0.463 *(0.282)*	15.23 *(3.00)*	73°F *(23°C)*
70.38 *(52.48)*	2406	5.16 *(19.51)*	0.517 *(0.314)*	13.65 *(2.69)*	Relative humidity
47.63 *(35.52)*	2436	4.25 *(16.09)*	0.630 *(0.383)*	11.20 *(2.21)*	14%
24.18 *(18.03)*	2460	3.17 *(11.99)*	0.924 *(0.562)*	7.63 *(1.50)*	Barometer
4.24 *(3.16)*	2460	2.48 *(9.39)*	4.125 *(2.509)*	1.71 *(0.34)*	28.54" Hg *(96.65 kPa)*

Maximum Torque - 352 lb.-ft. *(477 Nm)* at 1548 rpm
Maximum Torque rise - 45.8%
Torque rise at 1797 engine rpm - 40%
Power increase at 1899 rpm - 11.1%

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 cool-ing	*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—7th (B3) Gear									
92.10 *(68.68)*	7894 *(35.11)*	4.38 *(7.04)*	2299	6.4	0.499 *(0.303)*	14.15 *(2.79)*	184 *(84)*	61 *(16)*	28.64 *(96.99)*
75% of Pull at Maximum Power—7th (B3) Gear									
73.20 *(54.59)*	5924 *(26.35)*	4.63 *(7.45)*	2389	4.4	0.559 *(0.340)*	12.63 *(2.49)*	184 *(84)*	63 *(17)*	28.66 *(97.05)*
50% of Pull at Maximum Power—7th (B3) Gear									
50.20 *(37.43)*	3931 *(17.49)*	4.79 *(7.71)*	2424	2.8	0.661 *(0.402)*	10.68 *(2.10)*	184 *(84)*	63 *(17)*	28.66 *(97.05)*
75% of Pull at Reduced Engine Speed—10th (C2) Gear									
73.45 *(54.77)*	5896 *(26.22)*	4.67 *(7.52)*	1747	4.1	0.470 *(0.286)*	15.01 *(2.96)*	183 *(84)*	64 *(18)*	28.66 *(97.05)*
50% of Pull at Reduced Engine Speed—10th (C2) Gear									
50.30 *(37.51)*	3953 *(17.58)*	4.77 *(7.68)*	1759	2.7	0.519 *(0.316)*	13.60 *(2.68)*	182 *(83)*	64 *(18)*	28.65 *(97.02)*

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

Dates of tests: April 5 - 15, 2011

Manufacturer: Deere & Company, Moline, Illinois, USA

FUEL, OIL and Time: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8476 **Fuel weight** 7.057 lbs/gal *(0.846 kg/l)* **Oil SAE** 15W-40 **API service classification** CJ-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard II fluid **Front axle lubricant** John Deere Hy-Gard II fluid **Total time engine was operated** 19.5 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger and water to air intercooler **Serial No.** CD4045L168980 **Crankshaft** lengthwise **Rated engine speed** 2300 **Bore and stroke** 4.19" x 5.00" *(106.5 mm x 127.0 mm)* **Compression ratio** 16.7 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, engine coolant heat exchanger for hydraulic and transmission oil **Fuel filter** one paper element **Fuel cooler** radiator for pump return fuel **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 43.0 - 46.7 lb/h *(19.5 -21.2 kg/h)* **High idle:** 2410 - 2510 rpm **Turbo boost:** nominal 19.6-21.0 psi *(135-145 kPa)* as measured 20.3 psi *(140 kPa)*

CHASSIS: Type front wheel assist **Serial No.** L06430H659954 **Tread width** rear 56.9" *(1446 mm)* to 75.4" *(1916 mm)* front 59.9" *(1522 mm)* to 79.3" *(2014 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 1.60 *(2.57)* second 1.92 *(3.09)* third 2.30 *(3.70)* fourth 2.81 *(4.53)* fifth 3.20 *(5.15)* sixth 3.85 (*6.20)* seventh 4.61 *(7.42)* eighth 5.26 *(8.46)* ninth 5.65 *(9.09)* tenth 6.33 *(10.19)* eleventh 7.58 *(12.20)* twelfth 9.29 *(14.95)* thirteenth 10.83 (*17.43)* fourteenth 13.04 *(20.98)* fifteenth 15.62 *(25.13)* sixteenth 19.13 *(30.78)* reverse 1.67 *(2.68)*, 2.01 *(3.23)*, 2.40 *(3.86)*, 2.94 *(4.73)*, 3.34 *(5.37)*, 4.02 *(6.47)*, 4.82 *(7.75)*, 5.49 *(8.84)*, 5.90 *(9.49)*, 6.61 *(10.64)*, 7.92 *(12.74)*, 9.69 *(15.60)*, 11.31 *(18.20)*, 13.61 *(21.90)*, 16.30 *(26.23)*, 19.96 *(32.12)*

DRAWBAR PERFORMANCE
Unballasted–Front Drive Engaged-2300 Engine 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)*
					5th (B1) Gear				
83.95	10855	2.90	2363	12.8	0.548	12.89	185	52	28.70
(62.60)	*(48.28)*	*(4.67)*			*(0.333)*	*(2.54)*	*(85)*	*(11)*	*(97.19)*
					6th (B2) Gear				
91.10	9565	3.57	2300	8.4	0.510	13.84	184	53	28.70
(67.93)	*(42.55)*	*(5.75)*			*(0.310)*	*(2.73)*	*(84)*	*(11)*	*(97.19)*
					7th (B3) Gear				
92.10	7894	4.38	2299	6.4	0.499	14.15	184	61	28.64
(68.68)	*(35.11)*	*(7.04)*			*(0.303)*	*(2.79)*	*(84)*	*(16)*	*(96.99)*
					8th (C1) Gear				
91.05	6716	5.09	2300	4.7	0.504	14.01	183	60	28.63
(67.90)	*(29.87)*	*(8.18)*			*(0.306)*	*(2.76)*	*(84)*	*(15)*	*(96.95)*
					9th (B4) Gear				
90.25	6192	5.47	2299	4.3	0.509	13.86	184	64	28.65
(67.30)	*(27.54)*	*(8.80)*			*(0.310)*	*(2.73)*	*(84)*	*(18)*	*(97.02)*
					10th (C2) Gear				
92.25	5616	6.16	2301	3.9	0.496	14.23	185	65	28.66
(68.79)	*(24.98)*	*(9.91)*			*(0.302)*	*(2.80)*	*(85)*	*(18)*	*(97.05)*
					11th (C3) Gear				
92.40	4658	7.44	2300	3.3	0.498	14.17	185	65	28.67
(68.90)	*(20.72)*	*(11.97)*			*(0.303)*	*(2.79)*	*(85)*	*(18)*	*(97.09)*
					12th (C4) Gear				
90.00	3671	9.20	2301	2.7	0.515	13.71	183	66	28.66
(67.11)	*(16.33)*	*(14.80)*			*(0.313)*	*(2.70)*	*(84)*	*(19)*	*(97.05)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 7th(B3) Gear	74.0	74.0
Transport in 16th(D4) gear	--	74.1
Bystander in 16th(D4) gear	--	83.7

TIRES AND WEIGHT

	Tested Without Ballast
Rear Tires–No., size, ply & psi *(kPa)*	Two 460/85R38;**; 12 *(80)*
Front Tires–No., size, ply & psi *(kPa)*	Two 420/85R24;**; 12 *(80)*
Height of Drawbar	20.0 in *(510 mm)*
Static Weight with operator– Rear	6540 lb *(2967 kg)*
– Front	4075 lb *(1848 kg)*
– Total	10615 lb *(4815 kg)*

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 2220 engine rpm. **Unladen tractor mass** 10440 lb *(4735 kg)*

Note: The performance figures on this report apply to tractors with chassis serial numbers 634684 and higher.

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. This tractor did not meet the manufacturer's claim of 73.0 dB(A) cab sound level. For the maximum power tests the fuel temperature at the injection pump inlet was maintained at 118°F*(48°C)*. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1988**, Nebraska Summary 756, May 19, 2011.

Roger M. Hoy
Director

M.F. Kocher
D.R. Keshwani
P.J. Jasa
Board of Tractor Test Engineers

DRAWBAR PERFORMANCE
Unballasted–Front Drive Engaged-1900 Engine 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)*
				5th (B1) Gear					
84.00 *(62.64)*	10837 *(48.20)*	2.91 *(4.68)*	2362	12.6	0.552 *(0.335)*	12.80 *(2.52)*	185 *(85)*	52 *(11)*	28.70 *(97.19)*
				6th (B2) Gear					
92.80 *(69.20)*	10376 *(46.15)*	3.36 *(5.40)*	2233	11.4	0.507 *(0.308)*	13.92 *(2.74)*	184 *(84)*	53 *(12)*	28.70 *(97.19)*
				7th (B3) Gear					
98.00 *(73.08)*	9684 *(43.08)*	3.80 *(6.11)*	2079	10.0	0.487 *(0.296)*	14.48 *(2.85)*	184 *(84)*	62 *(17)*	28.65 *(97.02)*
				8th (C1) Gear					
99.40 *(74.12)*	9263 *(41.20)*	4.02 *(6.47)*	1900	8.5	0.464 *(0.283)*	15.19 *(2.99)*	184 *(84)*	61 *(16)*	28.64 *(96.99)*
				9th (B4) Gear					
100.55 *(74.98)*	8576 *(38.15)*	4.40 *(7.07)*	1899	7.0	0.462 *(0.281)*	15.28 *(3.01)*	185 *(85)*	65 *(18)*	28.66 *(97.05)*
				10th (C2) Gear					
101.15 *(75.43)*	7608 *(33.84)*	4.99 *(8.02)*	1899	5.8	0.458 *(0.279)*	15.40 *(3.03)*	184 *(84)*	65 *(19)*	28.66 *(97.05)*
				11th (C3) Gear					
102.75 *(76.62)*	6351 *(28.25)*	6.07 *(9.76)*	1903	4.7	0.451 *(0.274)*	15.64 *(3.08)*	184 *(84)*	65 *(18)*	28.66 *(97.05)*
				12th (C4) Gear					
101.05 *(75.35)*	5041 *(22.42)*	7.52 *(12.10)*	1901	3.5	0.458 *(0.279)*	15.40 *(3.03)*	185 *(85)*	66 *(19)*	28.66 *(97.05)*

DRAWBAR PERFORMANCE

UNBALLASTED - FRONT DRIVE DISENGAGED

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 (C1) Gear									
89.60	6815	4.93	2300	6.5	0.512	13.77	183	60	28.64
(66.81)	*(30.31)*	*(7.93)*			*(0.312)*	*(2.71)*	*(84)*	*(16)*	*(96.99)*
75% of Pull at Maximum Power—8th (C1) Gear									
71.45	5107	5.25	2391	4.5	0.566	12.48	184	56	28.68
(53.28)	*(22.72)*	*(8.44)*			*(0.344)*	*(2.46)*	*(84)*	*(13)*	*(97.12)*
50% of Pull at Maximum Power—8th (C1) Gear									
49.05	3423	5.38	2423	3.1	0.673	10.48	183	52	28.68
(36.58)	*(15.22)*	*(8.66)*			*(0.410)*	*(2.06)*	*(84)*	*(11)*	*(97.12)*
75% of Pull at Reduced Engine Speed—11th (C3) Gear									
71.25	5104	5.24	1658	4.4	0.457	15.45	182	55	28.68
(53.13)	*(22.70)*	*(8.42)*			*(0.278)*	*(3.04)*	*(83)*	*(13)*	*(97.12)*
50% of Pull at Reduced Engine Speed—11th (C3) Gear									
48.95	3403	5.40	1685	3.1	0.507	13.91	178	51	28.67
(36.50)	*(15.14)*	*(8.68)*			*(0.309)*	*(2.74)*	*(81)*	*(11)*	*(97.09)*

MAXIMUM POWER IN SELECTED GEARS

6th(B2) Gear									
78.15	8509	3.44	2374	13.4	0.569	12.39	184	55	28.68
(58.28)	*(37.85)*	*(5.54)*			*(0.346)*	*(2.44)*	*(84)*	*(13)*	*(97.12)*
7th(B3) Gear									
89.75	8073	4.17	2305	9.9	0.515	13.69	183	54	28.69
(66.93)	*(35.91)*	*(6.71)*			*(0.314)*	*(2.70)*	*(84)*	*(12)*	*(97.16)*
8th(C1) Gear									
89.60	6815	4.93	2300	6.5	0.512	13.77	183	60	28.64
(66.81)	*(30.31)*	*(7.93)*			*(0.312)*	*(2.71)*	*(84)*	*(16)*	*(96.99)*
9th(B4) Gear									
89.20	6272	5.34	2301	5.7	0.515	13.71	184	65	28.66
(66.52)	*(27.90)*	*(8.59)*			*(0.313)*	*(2.70)*	*(84)*	*(18)*	*(97.05)*
10th(C2) Gear									
91.80	5709	6.03	2300	5.0	0.501	14.08	184	65	28.66
(68.46)	*(25.39)*	*(9.70)*			*(0.305)*	*(2.77)*	*(84)*	*(18)*	*(97.05)*
11th(C3) Gear									
92.10	4735	7.29	2298	4.0	0.499	14.15	184	66	28.67
(68.68)	*(21.06)*	*(11.73)*			*(0.303)*	*(2.79)*	*(84)*	*(19)*	*(97.09)*
12th(C4) Gear									
90.35	3755	9.03	2299	3.1	0.506	13.94	184	66	28.66
(67.37)	*(16.70)*	*(14.52)*			*(0.308)*	*(2.75)*	*(84)*	*(19)*	*(97.05)*

HYDRAULIC PERFORMANCE

CATEGORY: II
Quick Attach: none
OECD Static test

Maximum force exerted through whole range:	5110 lbs *(22.7 kN)* (75 mm cylinders) 6398 lbs *(28.5 kN)* (80 mm cylinders)
i) Sustained pressure of the open relief valve:	2977 psi *(205 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	32.8 GPM *(124.2 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	32.0 GPM *(121.3 l/min)*
Delivery pressure:	2662 psi *(184 bar)*
Power:	49.8 HP *(37.1 kW)*

THREE POINT HITCH PERFORMANCE(SAE static test)

Observed maximum pressure psi. *(bar)*	2990 *(206)*
Location:	lift cylinder
Hydraulic oil temperature: ^{0}F *(^{0}C)*	149 *(65)*
Location:	hydraulic valve
Category:	II
Quick attach:	none

System pressure 2545 psi *(176 Bar)* - with lift cylinders 2 x 75 mm

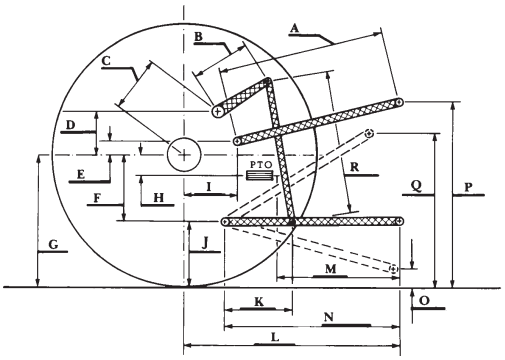
Hitch point distance to ground level in. *(mm)*	7.9 *(201)*	14.9 *(379)*	21.9 *(556)*	28.9 *(735)*	36.1 *(917)*
Lift force on frame lb	6676	7154	7246	7032	6355
" " " " " " *(kN)*	*(29.7)*	*(31.8)*	*(32.2)*	*(31.3)*	*(28.3)*

System pressure - 2480 psi *(171 Bar)* - with lift cylinders 2 x 80 mm

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	16.4 *(417)*	24.0 *(610)*	31.9 *(810)*	40.0 *(1016)*
Lift force on frame lb	15683	9566	9428	9212	8322
" " " " " " *(kN)*	*(69.8)*	*(42.6)*	*(41.9)*	*(41.0)*	*(37.0)*

HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	*mm*	inch	*mm*
A	25.8	*655*	24.4	*620*
B	12.6	*320*	12.6	*320*
C	20.0	*507*	20.0	*507*
D	23.9	*475*	23.9	*475*
E	9.7	*245*	9.7	*245*
F	8.7	*220*	8.7	*220*
G	32.3	*820*	32.3	*820*
H	4.9	*125*	4.9	*125*
I	17.6	*448*	17.6	*448*
J	23.6	*600*	23.6	*600*
K	19.8	*502*	19.8	*502*
L	42.3	*1076*	42.3	*1076*
M	21.5	*546*	21.5	*546*
N	37.2	*945*	37.2	*945*
O	7.9	*200*	7.9	*200*
P	47.6	*1210*	42.6	*1083*
Q	34.6	*880*	34.6	*880*
R	31.3	*795*	31.3	*795*



JOHN DEERE 6430 PREMIUM DIESEL

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