University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

2017

Nebraska Summary: S1110 John Deere 6130M

Nebraska Tractor Test Lab
University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: https://digitalcommons.unl.edu/tractormuseumlit

 Part of the Energy Systems Commons, History of Science, Technology, and Medicine Commons, Other Mechanical Engineering Commons, Physical Sciences and Mathematics Commons, Science and Mathematics Education Commons, and the United States History Commons

Nebraska Tractor Test Lab, "Nebraska Summary: S1110 John Deere 6130M" (2017). *Nebraska Tractor Tests*. 3401.
https://digitalcommons.unl.edu/tractormuseumlit/3401

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

SUMMARY OF OECD TEST 3051 - NEBRASKA SUMMARY 1110
JOHN DEERE 6130M POWRQUAD-PLUS DIESEL
24 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	D.E.F. Consumption Hp.hr/gal *(kW.h/l)*	Gal/hr *(l/h)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1070 rpm)						
103.6 *(77.2)*	2100	6.62 *(25.04)*	0.446 *(0.271)*	15.65 *(3.08)*	0.17 *(0.65)*	Fuel used during the active exhaust regeneration - 0.9 gal *(3.4 l)* (see Note1,p.2)
Standard Power Take-off Speed (1000 rpm)						
112.5 *(83.9)*	1962	6.77 *(25.60)*	0.420 *(0.255)*	16.62 *(3.27)*	0.19 *(0.73)*	
Maximum Power (1 hour)						
113.0 *(84.3)*	1800	6.59 *(24.95)*	0.406 *(0.247)*	17.16 *(3.38)*	0.18 *(0.68)*	
VARYING POWER AND FUEL CONSUMPTION						
103.6 *(77.2)*	2100	6.62 *(25.00)*	0.446 *(0.271)*	15.65 *(3.08)*	0.17 *(0.65)*	Air temperature
90.3 *(67.3)*	2154	6.13 *(23.20)*	0.472 *(0.287)*	14.75 *(2.91)*	0.13 *(0.48)*	68°F *(20°C)*
68.5 *(51.1)*	2178	5.28 *(20.00)*	0.538 *(0.327)*	12.96 *(2.55)*	0.09 *(0.34)*	Relative humidity
46.2 *(34.5)*	2206	4.36 *(16.50)*	0.657 *(0.400)*	10.61 *(2.09)*	0.07 *(0.28)*	32%
23.3 *(17.4)*	2228	3.43 *(13.00)*	1.024 *(0.623)*	6.80 *(1.34)*	0.05 *(0.20)*	Barometer
-- --	2247	2.40 *(9.10)*	-- --	-- --	0.04 *(0.16)*	29.7"Hg *(100.5 kPa)*

Maximum torque - 373 lb.-ft. *(505 Nm)* at 1200 rpm
Maximum torque rise - 43.9%
Torque rise at 1700 engine rpm - 31%
Power increase at 1800 engine rpm - 9.1%

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)*	D.E.F Consumption lb/hp.hr *(kg/kW.h)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Power at Rated Engine Speed—11th (C3) Gear										
101.1 *(75.4)*	7260 *(32.30)*	5.22 *(8.40)*	2101	3.4	0.476 *(0.289)*	14.67 *(2.89)*	0.016 *(0.010)*	169 *(76)*	36 *(2)*	29.8 *(100.8)*
75% of Pull at Rated Engine Speed—11th (C3) Gear										
78.3 *(58.4)*	5370 *(23.88)*	5.47 *(8.81)*	2187	2.6	0.552 *(0.336)*	12.64 *(2.49)*	0.012 *(0.007)*	167 *(75)*	37 *(3)*	29.8 *(100.8)*
50% of Pull at Rated Engine Speed—11th (C3) Gear										
52.6 *(39.2)*	3540 *(15.75)*	5.57 *(8.96)*	2204	1.7	0.672 *(0.409)*	10.40 *(2.05)*	0.012 *(0.007)*	162 *(72)*	37 *(3)*	29.8 *(100.8)*
75% of Pull at Reduced Engine Speed—13th (C4) Gear										
79.0 *(58.9)*	5430 *(24.16)*	5.46 *(8.78)*	1779	2.5	0.466 *(0.283)*	14.99 *(2.95)*	0.015 *(0.009)*	163 *(73)*	36 *(2)*	29.7 *(100.7)*
50% of Pull at Reduced Engine Speed—13th (C4) Gear										
53.2 *(39.7)*	3590 *(15.98)*	5.56 *(8.95)*	1799	1.7	0.547 *(0.333)*	12.78 *(2.52)*	0.016 *(0.010)*	163 *(73)*	36 *(2)*	29.7 *(100.7)*

Location of tests: DLG e.V. Test Centre, Technology and Farm inputs, Max-Eyth-Weg 1, D-64823 Gross-Umstadt, Germany

Dates of tests: November 2016 to January 2017

Manufacturer: John Deere GmbH & Co., KG Mannheim Germany

CONSUMABLE Fluids: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.8384 **Fuel weight** 6.99 lbs/gal *(0.837 kg/l)* **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal *(1.087 kg/l)* **Oil SAE** 10W-30 **API service classification** CJ-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Front axle lubricant** John Deere Hy-Gard fluid

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with two turbochargers, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** *CD4045U020881* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 4.19 x 5.00" *(106.5 mm x 127.0 mm)* **Compression ratio** 17.0 to 1 **Displacement** 276 cu in *(4525 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 pump return fuel **Exhaust** DOC (diesel oxidation catalyst)/DPF (diesel particulate filter) System and SCR (selective catalyst reduction) with a vertical muffler **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: Type front wheel assist **Serial No.** *1L06130MVGG865275* **Tread width** rear 65".1 *(1654 mm)* to 105.0" *(2666 mm)* front 55.9" *(1420 mm)* to 83.5" *(2120 mm)* **Wheelbase** 101.6" *(2580 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (4) range operator controlled power shift **Nominal travel speeds mph *(km/h)*** first 0.93 *(1.50)* second 1.12 *(1.81)* third 1.35 *(2.17)* fourth 1.65 *(2.65)* fifth 2.28 *(3.67)* sixth 2.74 *(4.42)* seventh 3.29 *(5.29)* eighth 3.72 *(5.98)* ninth 4.03 *(6.48)* tenth 4.47 *(7.20)* eleventh 5.36 *(8.62)* twelfth 6.09 *(9.81)* thirteenth 6.56 *(10.56)* fourteenth 7.34 *(11.81)* fifteenth 8.79 *(14.15)* sixteenth 9.90 *(15.94)* seventeenth 10.77 *(17.33)* eighteenth 11.93 *(19.20)* nineteenth 13.37 *(21.52)* twentieth 14.29 *(22.99)* twenty-first 16.11 *(25.92)* twenty-second 17.50 *(28.16)* twenty-third 19.29 *(31.04)* twenty-fourth 23.63 *(38.02)*

DRAWBAR PERFORMANCE

UNBALLASTED - FRONT DRIVE ENGAGED - 1800 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)*	D.E.F. Consumption lb/hp.hr *(kg/kW.h)*	Temp.°F(°C) cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					7th (B3) Gear					
94.3	13540	2.61	1955	15.0	0.510	13.71	0.015	158	36	29.9
(70.3)	*(60.23)*	*(4.20)*			*(0.310)*	*(2.70)*	*(0.009)*	*(70)*	*(2)*	*(100.8)*
					8th (C1) Gear					
100.6	13095	2.88	1801	10.2	0.464	15.08	0.015	174	34	29.8
(75.0)	*(58.25)*	*(4.64)*			*(0.282)*	*(2.97)*	*(0.009)*	*(79)*	*(1)*	*(100.8)*
					9th(B4) Gear					
103.0	12050	3.21	1800	7.8	0.451	15.48	0.015	172	34	29.8
(76.8)	*(53.60)*	*(5.16)*			*(0.275)*	*(3.05)*	*(0.009)*	*(78)*	*(1)*	*(100.8)*
					10th (C2) Gear					
104.5	10805	3.63	1801	6.2	0.448	15.58	0.013	174	36	29.8
(77.9)	*(48.07)*	*(5.84)*			*(0.273)*	*(3.07)*	*(0.008)*	*(79)*	*(2)*	*(100.8)*
					11th(C3) Gear					
105.5	8935	4.43	1803	4.5	0.445	15.74	0.013	174	34	29.7
(78.7)	*(39.74)*	*(7.13)*			*(0.271)*	*(3.10)*	*(0.008)*	*(79)*	*(1)*	*(100.7)*
					12th(D1) Gear					
105.1	7760	5.08	1801	3.6	0.446	15.67	0.013	171	32	29.7
(78.4)	*(34.51)*	*(8.18)*			*(0.272)*	*(3.09)*	*(0.008)*	*(77)*	*(0)*	*(100.7)*
					13th (C4) Gear					
105.0	7190	5.48	1799	3.4	0.443	15.76	0.015	172	32	29.7
(78.3)	*(31.99)*	*(8.82)*			*(0.270)*	*(3.11)*	*(0.009)*	*(78)*	*(0)*	*(100.7)*
					14th(D2) Gear					
104.9	6385	6.16	1802	2.9	0.446	15.67	0.015	171	32	29.7
(78.2)	*(28.39)*	*(9.92)*			*(0.272)*	*(3.09)*	*(0.009)*	*(77)*	*(0)*	*(100.7)*
					15th(D3) Gear					
104.7	5285	7.43	1804	2.4	0.450	15.53	0.013	172	34	29.7
(78.1)	*(23.50)*	*(11.96)*			*(0.274)*	*(3.06)*	*(0.008)*	*(78)*	*(1)*	*(100.7)*
					16th (E1) Gear					
103.4	4615	8.40	1804	2.1	0.455	15.37	0.015	171	34	29.8
(77.1)	*(20.54)*	*(13.51)*			*(0.277)*	*(3.03)*	*(0.009)*	*(77)*	*(1)*	*(100.8)*
					17th(D4) Gear					
102.9	4205	9.17	1809	2.0	0.459	15.23	0.015	172	34	29.8
(76.7)	*(18.71)*	*(14.76)*			*(0.279)*	*(3.00)*	*(0.009)*	*(78)*	*(1)*	*(100.8)*
					18th(E2) Gear					
101.3	3735	10.17	1809	1.8	0.465	15.02	0.015	169	32	29.7
(75.5)	*(16.62)*	*(16.37)*			*(0.283)*	*(2.96)*	*(0.009)*	*(76)*	*(0)*	*(100.7)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 10th (C2) gear	69.1	68.6
Transport speed - no load - 24th (F4) gear		71.5
Bystander		--

TIRES AND WEIGHT	Tested Without Ballast
Rear Tires - No., size, ply & psi*(kPa)*	Two 480/70R38;***;12*(80)*
Front Tires - No., size, ply & psi*(kPa)*	Two 420/70R24;***;12*(80)*
Height of Drawbar	17.0 in *(430 mm)*
Static Weight with operator - Rear	8135 lb *(3690 kg)*
- Front	5235 lb *(2375 kg)*
- Total	13370 lb *(6065 kg)*

reverse 0.98 *(1.57)*, 1.17 *(1.89)*, 1.40 *(2.26)*, 1.72 *(2.77)*, 2.38 *(3.83)*, 2.86 *(4.61)*, 3.43 *(5.52)*, 3.88 *(6.24)*, 4.20 *(6.76)*, 4.67 *(7.51)*, 5.59 *(9.00)*, 6.36 *(10.24)*, 6.84 *(11.02)*, 7.66 *(12.33)*, 9.17 *(14.76)*, 10.34 *(16.64)*, 11.24 *(18.09)*, 12.45 *(20.03)*, 13.96 *(22.46)*, 14.91 *(23.99)*, 16.80 *(27.04)*, 18.26 *(29.39)*, 20.13 *(32.39)*, 24.47 *(39.68)* **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** 540 rpm at 1967 engine rpm or 1000 rpm at 1962 engine rpm **Unladen tractor mass** 13205 lb *(5990 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The manufacturer declares that the average time between active regenerations is 50 hours.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. The manufacturer's remote hydraulic flow claim of 21.1 GPM *(80 l/min)* with 35 cc pump was not verified. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **3051,** Nebraska Summary 1110, October 17, 2017.

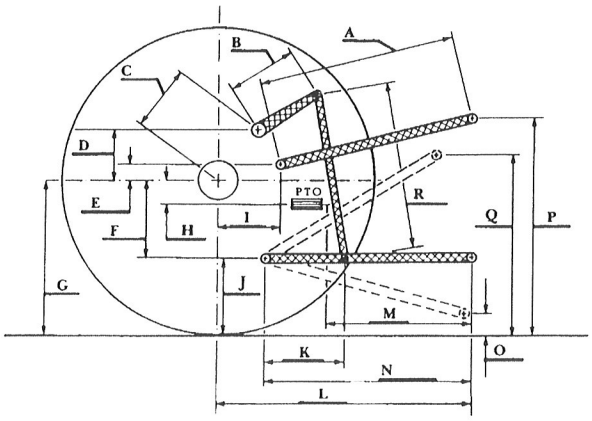
Roger M. Hoy
Director

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

HYDRAULIC PERFORMANCE with 45 cc pump

CATEGORY: 2
Quick Attach: No

Lift cylinders:	2 x 70 mm	2 x 80 mm
Maximum force exerted through whole range:	6900 lbs *(30.7 kN)*	8700 lbs *(38.7 kN)*
i) Sustained pressure at compensator cutoff:	2960 psi *(204 bar)*	
	two outlet sets combined	
ii) Pump delivery rate at minimum pressure:	30.9 GPM *(117.1 l/min)*	
iii)Pump delivery rate at maximum hydraulic power:	28.7 GPM *(108.5 l/min)*	
Delivery pressure:	2640 psi *(182 bar)*	
Power:	44.2 HP *(32.9 kW)*	
	single outlet set	
ii) Pump delivery rate at minimum pressure:	30.4 GPM *(115.2 l/min)*	
iii)Pump delivery rate at maximum hydraulic power:	28.1 GPM *(106.4 l/min)*	
Delivery pressure:	2395 psi *(165 bar)*	
Power:	39.3 HP *(29.3 kW)*	



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	28.3	*720*
B	15.4	*390*
C	21.7	*552*
D	20.7	*525*
E	9.8	*250*
F	8.8	*224*
G	31.5	*800*
H	1.6	*40*
I	17.3	*439*
J	22.7	*576*
K	22.2	*565*
L	45.3	*1150*
M	21.7	*550*
N	40.0	*1015*
O	8.0	*203*
P	46.7	*1186*
Q	38.7	*982*
R	36.4	*925*

NTTL.(2017) OECD tractor test 3051 for John Deere 6130M PowerQuad Plus Diesel. Lincoln, NE:Nebraska Tractor Test Laboratory. Retrieved from http://tractortestlab.unl.edu