

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

2012

Test 2028: John Deere 6230 T3

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, "Test 2028: John Deere 6230 T3" (2012). *Nebraska Tractor Tests*. 2441. <https://digitalcommons.unl.edu/tractormuseumlit/2441>

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.

NEBRASKA TRACTOR TEST 2028

JOHN DEERE 6230 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-1041 rpm)					
78.10 (58.24)	2299	5.54 (20.98)	0.499 (0.304)	14.09 (2.78)	
Standard Power Take-off Speed (1000 rpm)					
82.60 (61.59)	2208	5.57 (21.07)	0.474 (0.288)	14.84 (2.92)	
Maximum Power (1 hour)					
85.45 (63.72)	1899	5.31 (20.11)	0.437 (0.266)	16.09 (3.17)	

VARYING POWER AND FUEL CONSUMPTION

78.10 (58.24)	2299	5.54 (20.98)	0.499 (0.304)	14.09 (2.78)	Air temperature
68.55 (51.12)	2372	5.18 (19.62)	0.532 (0.323)	13.23 (2.61)	73°F (23°C)
51.35 (38.29)	2392	4.45 (16.86)	0.610 (0.371)	11.53 (2.27)	Relative humidity
34.95 (26.06)	2417	3.78 (14.32)	0.762 (0.463)	9.24 (1.82)	29%
17.40 (12.98)	2448	3.09 (11.70)	1.250 (0.760)	5.63 (1.11)	Barometer
1.80 (1.34)	2460	2.33 (8.83)	9.111 (5.542)	0.77 (0.15)	28.89" Hg (97.83 kPa)

Maximum Torque - 258 lb.-ft. (350 Nm) at 1599 rpm
Maximum Torque rise - 44.7%
Torque rise at 1848 engine rpm - 35%
Power increase at 1899 rpm - 9.4%

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th (B3) Gear	73.0	72.9
Transport in 16th (D4) gear	--	74.5
Bystander in 16th (D4) gear	--	80.0

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 460/85R34; **, 12 (80)
Two 380/85R24; **, 12 (80)
16.5 in (420 mm)
6155 lb (2792 kg)
3810 lb (1728 kg)
9965 lb (4520 kg)

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

Dates of tests: May 16 - 21, 2012

Manufacturer: John Deere Werke, Mannheim Germany

FUEL, OIL and Time: Fuel No. 2 Diesel
Specific gravity converted to 60°/60°F (15°/15°C) 0.8448
Fuel weight 7.034 lbs/gal (0.843 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 7.5 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger and water to air intercooler
Serial No. *CD4045L182531*
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: 36.1 - 39.0 lb/h (16.4 - 17.7 kg/h)
High idle: 2410 - 2510 rpm
Turbo boost: nominal 12.3-15.2 psi (85-105 kPa) as measured 13.9 psi (96 kPa)

CHASSIS: Type front wheel assist
Serial No. *1LO6230XKBH700851*
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)

HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: none

OECD Static test

Maximum force exerted through whole range: pump size	4450 lbs (19.8 kN) 21.1 GPM (79.8 l/min)	29.0 GPM (109.8 l/min)
i) Sustained pressure of the open relief valve:	2980 psi (205 bar)	2996 psi (207 bar)
ii) Pump delivery rate at minimum pressure:	23.1 GPM (87.5 l/min)	32.1 GPM (121.6 l/min)
iii) Pump delivery rate at maximum hydraulic power:	23.3 GPM (88.1 l/min)	31.2 GPM (118.2 l/min)
Delivery pressure:	2613 psi (180 bar)	2608 psi (180 bar)
Power:	35.5 HP (26.5 kW)	47.5 HP (35.4 kW)

THREE POINT HITCH PERFORMANCE (SAE static test)

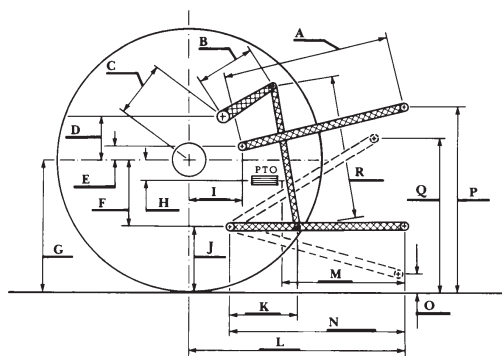
Observed maximum pressure psi. (bar)	2990 (206)
Location:	lift cylinder
Hydraulic oil temperature: °F (°C)	149 (65)
Location:	hydraulic valve
Category:	II
Quick attach:	none

System pressure - 2480 psi (171 Bar)

Hitch point distance to ground level in. (mm)	8.0 (203)	15.0 (381)	22.0 (559)	29.0 (737)	36.0 (915)
Lift force on frame lb	5622	6020	6106	5970	5356
" " " " " (kN)	(25.0)	(26.8)	(27.2)	(26.6)	(23.8)

HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test inch	mm	SAE test 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



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** 9790 lb (4441 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 119°F (49°C).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2028**, June 27, 2012.

Roger M. Hoy
Director

M.A. Hanna
P.J. Jasa
J.D. Luck
Board of Tractor Test Engineers



JOHN DEERE 6230 DIESEL