

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

2023

Nebraska Tractor Test: 2270 John Deere 5095M PowrQuad Plus

Nebraska Tractor Test Lab

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](#)

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 2270

JOHN DEERE 5095M PowrQuad PLUS DIESEL

16 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption Gal/hr (l/h)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—566 rpm)						
83.01 (61.90)	2201	5.39 (20.41)	0.457 (0.278)	15.40 (3.03)	0.31 (1.16)	Fuel used during active exhaust regeneration-0.47 gal (1.77 l) (see note 1, p.2)
Standard Power Take-off Speed(540 rpm)						
87.38 (65.16)	2100	5.40 (20.42)	0.434 (0.264)	16.19 (3.19)	0.42 (1.59)	
Maximum Power (1 hour)						
90.11 (67.19)	1902	5.18 (19.62)	0.404 (0.246)	17.38 (3.42)	0.38 (1.45)	

VARYING POWER AND FUEL CONSUMPTION

83.01 (61.90)	2201	5.39 (20.41)	0.457 (0.278)	15.40 (3.03)	0.31 (1.16)	Air temperature
72.08 (53.75)	2252	5.01 (18.97)	0.489 (0.297)	14.38 (2.83)	0.37 (1.39)	72°F (22°C)
54.61 (40.72)	2272	4.35 (16.45)	0.560 (0.340)	12.56 (2.48)	0.29 (1.08)	Relative humidity
36.74 (27.40)	2295	3.55 (13.44)	0.680 (0.413)	10.35 (2.04)	0.25 (0.94)	16%
18.50 (13.80)	2300	2.73 (10.34)	1.038 (0.631)	6.77 (1.33)	0.18 (0.68)	Barometer
0.46 (0.35)	2301	1.93 (7.31)	29.270 (17.804)	0.24 (0.05)	0.16 (0.59)	28.92" Hg (97.93 kPa)

Maximum torque - 272 lb.-ft. (368 Nm) at 1602 rpm
Maximum torque rise - 37.1%
Torque rise at 1762 engine rpm - 33%
Power increase at 1902 engine rpm - 8.6%

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th (B3) gear	76.3	76.5
Transport in 15th (D3) gear		77.6
Bystander in 15th (D3) gear		80.2

Horizontal distances of drawbar hitch point behind rear wheel axis - 34.4" (875 mm)

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 (85)
Two 340/85R24; **, 12 (85)
20.5 in (520 mm)
6300 lb (2858 kg)
3785 lb (1717 kg)
10085 lb (4575 kg)

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

Dates of tests: November 9 - 13, 2023

Manufacturer: John Deere India Private Limited, Gat No. 166-167, 217-291, Pune Nagar Road Sanaswadi Village, Pune - 412208

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°F (15°/15°C)** 0.8445 **Fuel weight** 7.032 lbs/gal (0.843 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil** SAE 10W30 **API service classification** CJ-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Front axle lubricant** John Deere Hy-Gard fluid **Total time engine was operated** 9.5 hours.

ENGINE: Make John Deere **Diesel Type** four cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** *PE4045U178463* **Crankshaft** lengthwise **Rated engine speed** 2200 **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 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** two spin on filters **Fuel cooler** radiator for return fuel **Exhaust** regenerative aftertreatment system consisting of DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) with a vertical exhaust **Cooling medium temperature control** thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 36.0 - 39.9 lb/h (16.3 - 18.1 kg/h) **High idle:** 2250 - 2350 rpm **Turbo boost:** nominal 18.9 - 21.8 psi (130 - 150 kPa) as measured 20.2 psi (139 kPa)

CHASSIS: Type front wheel assist **Serial No.** *1PY5130MCPB000032* **Tread width** rear 58.9" (1497 mm) to 70.7" (1795 mm) front 55.0" (1398 mm) to 78.7" (1998 mm) **Wheelbase** 92.5" (2350 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 1.45 (2.34) second 1.79 (2.88) third 2.22 (3.58) fourth 2.73 (4.39) fifth 3.36 (5.41) sixth 4.15 (6.68) seventh 5.15 (8.28) eighth 6.31 (10.16) ninth 6.51 (10.48) tenth 8.04 (12.94) eleventh 9.96 (16.03) twelfth 12.22 (19.67) thirteenth 14.58 (23.46) fourteenth 18.00 (28.97) fifteenth 22.30 (35.89) sixteenth 24.86 (40.00) (electronically limited)

HYDRAULIC PERFORMANCE with PowrQuad transmission

CATEGORY: 2

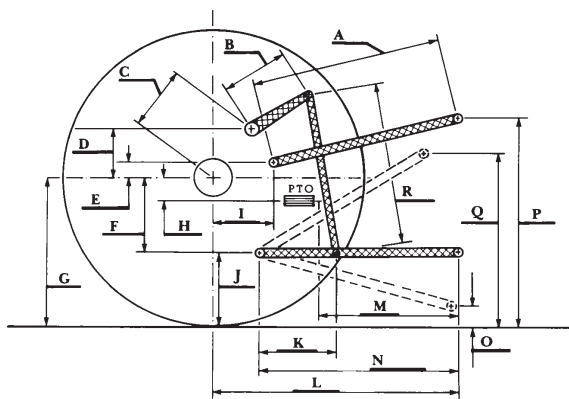
Quick Attach: None

OECD Static test

		<u>lift cylinders</u>
Maximum force exerted through whole range:	6979 lbs (31.0 kN)	(2 x 75 mm)
	7872 lbs (35.0 kN)	(2 x 80 mm)
	<u>single outlet set</u>	<u>three outlet sets combined</u>
i) Sustained pressure of the open relief valve:	2813 psi (194 bar)	2813 psi (194 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	21.5 GPM (81.2 l/min)	21.6 GPM (81.7 l/min)
iii) Pump delivery rate at maximum hydraulic power:	20.1 GPM (76.0 l/min)	20.6 GPM (78.0 l/min)
Delivery pressure:	2448 psi (169 bar)	2376 psi (164 bar)
Power:	28.7 HP (21.4 kW)	28.6 HP (21.3 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	26.4	670
B	14.1	358
C	17.7	449
D	15.0	380
E	14.4	365
F	8.8	223
G	31.3	795
H	0.2	4
I	14.4	365
J	22.5	572
K	17.5	444
L	41.1	1045
M	23.0	585
N	32.1	815
O	9.1	230
P	46.5	1182
Q	38.4	975
R	32.3	820



reverse 1.55 (2.50), 1.92 (3.09), 2.37 (3.82), 2.91 (4.69), 3.59 (5.78), 4.44 (7.14), 5.49 (8.84), 6.74 (10.85), 6.95 (11.19), 8.58 (13.80), 10.63 (17.11), 13.04 (20.99), 15.55 (25.03), 18.64 (30.00), 18.64 (30.00), 18.64 (30.00) (electronically limited)
Clutch wet disc hydraulically actuated by foot pedal
Brakes wet disc hydraulically actuated by two foot pedals which can be locked together
Steering hydrostatic **Power take-off** 540 rpm at 2100 engine rpm, Economy PTO 540 rpm at 1645 engine rpm **Unladen tractor mass** 9910 lb (4495 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The manufacturer declares that the average time between active regenerations is over 50 hours. A 4% power decrease was observed during the active exhaust regeneration.

NOTE 2: The performance figures on this report are the result of replacing the electronic control module of the John Deere 5130M with the John Deere 5095M module.

NOTE 3: The manufacturer's 3 point lift capacity claims of: standard 5150 lbs (2336 kg) and optional, 5950 lbs (2699 kg), when equipped with PowrReverser transmission, were not verified.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 2270, February 26, 2024.

Roger M. Hoy
 Director

P.J. Jasa
 J.D. Luck
 S.K. Pitla
 Board of Tractor Test Engineers

Shiftable PTO Performance

Economy mode

540 PTO rpm @1645 engine rpm

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption Gal/hr (l/h)
84.48 (63.00)	1645	4.67 (17.68)	0.389 (0.236)	18.09 (3.56)	0.35 (1.34)
63.39 (47.27)	1648	3.61 (13.67)	0.401 (0.244)	17.56 (3.46)	0.30 (1.14)
42.25 (31.51)	1638	2.72 (10.30)	0.453 (0.275)	15.53 (3.06)	0.17 (0.65)
21.05 (15.70)	1642	1.86 (7.04)	0.621 (0.378)	11.32 (2.23)	0.14 (0.53)
0.26 (0.19)	1651	1.09 (4.11)	29.834 (18.147)	0.24 (0.05)	0.12 (0.46)

Normal mode

540 PTO rpm @2100 engine rpm

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption Gal/hr (l/h)
84.47 (62.99)	2095	5.23 (19.80)	0.435 (0.265)	16.15 (3.18)	0.32 (1.22)
63.43 (47.30)	2104	4.35 (16.46)	0.482 (0.293)	14.59 (2.87)	0.29 (1.09)
42.25 (31.51)	2100	3.38 (12.80)	0.563 (0.342)	12.49 (2.46)	0.21 (0.78)
21.06 (15.70)	2099	2.41 (9.11)	0.804 (0.489)	8.75 (1.72)	0.16 (0.59)
0.25 (0.18)	2096	1.57 (5.95)	44.623 (27.143)	0.16 (0.03)	0.11 (0.41)

RECOMMENDED CITATION FORMAT:

NTTL.(2024). Nebraska Tractor test 2270 for John Deere 5095M PowrQuad Plus Diesel.
Lincoln, NE:Nebraska Tractor Test Laboratory. Retrieved from <http://tractortestlab.unl.edu>



JOHN DEERE 5095M PowrQuad Plus DIESEL
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln