

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.
Larsen

January 2005

Test 1867: John Deere 5325 Diesel 9-speed

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 1867: John Deere 5325 Diesel 9-speed" (2005). *Nebraska Tractor Tests*. 2117.

<https://digitalcommons.unl.edu/tractormuseumlit/2117>

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 1867

JOHN DEERE 5325 DIESEL

9 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft rpm	Gal/lr (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—538 rpm)					
56.16 (41.88)	2400	3.96 (14.99)	0.497 (0.302)	14.18 (2.79)	
Maximum Power-(1 hour)					
57.27 (42.70)	2100	3.64 (13.79)	0.448 (0.273)	15.72 (3.10)	

VARYING POWER AND FUEL CONSUMPTION

56.16 (41.88)	2400	3.96 (14.99)	0.497 (0.302)	14.18 (2.79)	Air temperature
50.02 (37.30)	2523	3.74 (14.17)	0.528 (0.321)	13.36 (2.63)	76°F (25°C)
38.07 (28.39)	2543	3.09 (11.70)	0.573 (0.348)	12.31 (2.43)	Relative humidity
25.50 (19.01)	2570	2.47 (9.34)	0.682 (0.415)	10.33 (2.04)	41%
13.02 (9.71)	2596	1.86 (7.03)	1.006 (0.612)	7.01 (1.38)	Barometer
0.81 (0.61)	2630	1.38 (5.21)	11.930 (7.257)	0.59 (0.12)	29.21"Hg (98.92kPa)

Maximum Torque 180 lb.-ft. (245 Nm) at 1446 rpm
 Maximum Torque Rise -46.8%
 Torque rise at 1901 rpm -26%

TRACTOR SOUND LEVEL WITH CAB

	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 5th(B2) gear	78.8	78.7
Transport in 9th(C3) gear		77.0
Bystander in 9th (C3) gear	--	81.0

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 16.9-30;6;12 (85)
 Two 11.2-24;8;14 (95)
 17.0 in (435 mm)
 4180 lb (1896 kg)
 2755 lb (1250 kg)
 6935 lb (3146 kg)

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

Dates of tests: November 17-23, 2005.

Manufacturer: John Deere Commercial Products Inc., 700 Horizon South Parkway, Grovetown Ga. USA, 30813

FUEL, OIL and TIME: Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8468 Fuel weight 7.051 lbs/gal (0.845 kg/l) Oil SAE 10W30 API service classification CF/CH-4 Transmission and hydraulic lubricant John Deere Hy-Gard Fluid Front axle lubricant SAE 80W90 API GL-5 Total time engine was operated 9.0 hours

ENGINE: Make John Deere Diesel Type five cylinder vertical with turbocharger Serial No. *PE5030T027148* Crankshaft lengthwise Rated engine speed 2400 Bore and stroke 3.385" x 4.134" (86.0 mm x 105.0 mm) Compression ratio 20.5 to 1 Displacement 186 cu in (3050 ml) Starting system 12 volt Lubrication pressure Air cleaner one paper element and one polyester felt element Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil Fuel filter one paper element and sediment bowl Muffler underhood Exhaust vertical Cooling medium temperature control one thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 25.7 - 28.5 lb/h (11.7 - 12.9 kg/h) High idle: 2575 - 2675 rpm Turbo boost: nominal 14.5 - 17.4 psi (100 - 120 kPa) as measured 16.3 psi (112 kPa)

CHASSIS: Type front wheel assist Serial No. *LV5325T132001* Tread width rear 54.8" (1417 mm) to 71.7" (1820 mm) front 52.8" (1340 mm) to 75.0" (1904 mm) Wheelbase 85.7" (2178 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio Nominal travel speeds mph (km/h) first 1.35 (2.18) second 1.96 (3.16) third 2.89 (4.65) fourth 3.43 (5.52) fifth 4.96 (7.98) sixth 7.30 (11.74) seventh 8.74 (14.06) eighth 12.63 (20.32) ninth 18.59 (29.92) reverse 2.24 (3.60), 5.65 (9.09), 14.39 (23.16) Clutch single dry disc operated by foot pedal Brakes single wet disc hydraulically operated by two foot pedals which can be locked together Steering hydrostatic Power take-off 540 rpm at 2410 engine rpm or 540 rpm at 1716 engine rpm Unladen tractor mass 6760 lb (3066 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum force exerted through whole range:	3213 lbs	(14.3 kN)
i) Opening pressure of relief valve:	NA	
Sustained pressure of the open relief valve:	2906 psi	(200 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	14.1 GPM	(53.4 l/min)
iii) Pump delivery rate at maximum hydraulic power:	12.2 GPM	(46.2 l/min)
Delivery pressure:	2736 psi	(189 bar)
Power:	19.5 HP	(14.5 kW)

THREE POINT HITCH PERFORMANCE

Observed maximum pressure psi. (bar)	2830 (195)
Location:	remote outlet
Hydraulic oil temperature: °F (°C)	148 (64)
Location:	pump inlet
Category:	II
Quick attach:	none

SAE Static Test—System pressure 2520 psi (174 Bar)

Hitch point distance to ground level in. (mm)	8.0 (203)	15.0 (381)	22.0 (559)	29.0 (737)	36.0 (914)
Lift force on frame lb	4694	4829	4685	4266	3596
" " " " " (kN)	(20.9)	(21.5)	(20.8)	(19.0)	(16.0)

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 135°F (57°C).

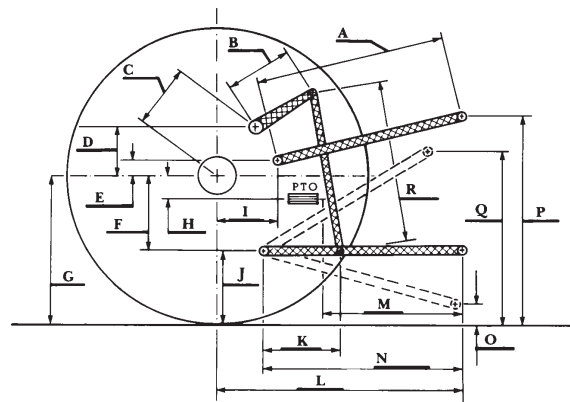
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1867**, March 17, 2006.

Leonard L. Bashford
Director

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

	SAE Test		OECD Test	
	inch	mm	inch	mm
A	23.2	590	24.1	613
B	11.0	280	11.0	280
C	14.0	356	14.0	356
D	12.2	311	12.2	311
E	11.2	284	11.2	284
F	6.5	166	6.5	166
G	27.4	695	27.4	695
H	0.2	4	0.2	4
I	15.1	384	15.1	384
J	20.9	530	20.9	530
K	16.7	424	16.7	424
L	39.2	996	39.2	996
M	22.4	570	22.4	570
N	32.9	836	32.9	836
O	8.0	203	8.0	203
P	40.9	1040	44.9	1140
Q	34.0	864	34.0	864
R	20.8	527	20.8	527

HITCH DIMENSIONS AS TESTED - NO LOAD



Shiftable PTO Performance

Economy mode

540 PTO rpm @ 1716 engine rpm

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)
53.78 (40.10)	1711	3.21 (12.13)	0.420 (0.256)	16.78 (3.31)
40.71 (30.36)	1718	2.50 (9.45)	0.432 (0.263)	16.31 (3.21)
26.96 (20.11)	1717	1.73 (6.55)	0.452 (0.275)	15.58 (3.07)
13.62 (10.16)	1715	1.21 (4.56)	0.624 (0.380)	11.30 (2.23)
0.69 (0.52)	1714	0.64 (2.42)	6.496 (3.951)	1.09 (0.21)

Normal mode

540 PTO rpm @ 2410 engine rpm

53.98 (40.25)	2410	3.82 (14.44)	0.498 (0.303)	14.15 (2.79)
40.61 (30.28)	2411	3.08 (11.65)	0.534 (0.325)	13.20 (2.60)
26.99 (20.13)	2411	2.34 (8.86)	0.611 (0.372)	11.53 (2.27)
13.57 (10.12)	2403	1.74 (6.60)	0.906 (0.551)	7.78 (1.53)
0.75 (0.56)	2413	1.19 (4.51)	11.269 (6.855)	0.63 (0.12)



JOHN DEERE 5325 DIESEL

Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln