

Tractor Test and Power Museum, The Lester F. Larsen

UNL Larsen Tractor Museum Archives

University of Nebraska - Lincoln

Year 2007

Test 1892: John Deere 5403 Diesel
9-Speed

Tractor Museum
University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

NEBRASKA TRACTOR TEST 1892

JOHN DEERE 5403 DIESEL

9 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—545 rpm)					
65.04 (48.50)	2400	3.97 (15.01)	0.427 (0.260)	16.40 (3.23)	
Maximum Power (1 hour)					
66.27 (49.42)	2300	3.91 (14.81)	0.414 (0.252)	16.94 (3.34)	

VARYING POWER AND FUEL CONSUMPTION

65.04 (48.50)	2400	3.97 (15.01)	0.427 (0.260)	16.40 (3.23)	Air temperature
57.62 (42.96)	2501	3.72 (14.09)	0.453 (0.276)	15.48 (3.05)	77°F (25°C)
43.89 (32.73)	2542	3.04 (11.50)	0.485 (0.295)	14.45 (2.85)	Relative humidity
29.67 (22.12)	2563	2.37 (8.96)	0.559 (0.340)	12.53 (2.47)	52%
14.75 (11.00)	2586	1.53 (5.78)	0.725 (0.441)	9.67 (1.90)	Barometer
0.39 (0.29)	2599	0.88 (3.35)	15.769 (9.592)	0.44 (0.09)	28.79" Hg (97.49 kPa)

Maximum torque 172 lb.-ft. (233 Nm) at 1699 rpm
 Maximum torque rise -21.1%
 Torque rise at 1902 rpm -16%
 Power increase at 2300 rpm -2%

TRACTOR SOUND LEVEL WITHOUT CAB

	dB(A)
At no load in 5th(B2) gear	91.5
Transport speed-no load-9th(C3) gear	90.7
Bystander in 9th(C3) gear	81.9

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 16.9-28; 8; 14 (95)
 Two 7.50-16; 6; 28 (195)
 16.5 in (420 mm)
 3325 lb (1508 kg)
 1800 lb (817 kg)
 5125 lb (2325 kg)

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

Dates of tests: March 26 - April 4, 2007

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) 0.8421 Fuel weight 7.011 lbs/gal (0.840 kg/l) Oil SAE 15W40 API service classification CG-4 Transmission and hydraulic lubricant John Deere Hy-Gard Fluid Total time engine was operated 8.5 hours

ENGINE: Make John Deere Diesel **Type** three cylinder vertical with turbocharger **Serial No.** *PY3029T109335* **Crankshaft** lengthwise **Rated engine speed** 2400 **Bore and stroke** 4.19" x 4.33" (106.5 mm x 110.0 mm) **Compression ratio** 17.8 to 1 **Displacement** 179 cu in (2934 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 **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 26.0 - 28.7 lb/h (11.8 - 13.0 kg/h) **High idle:** 2575 - 2650 rpm **Turbo boost:** nominal 12.3 - 15.2 psi (85 - 105 kPa) as measured 13.7 psi (95 kPa)

CHASSIS: Type standard **Serial No.** *PY5403U000008* **Tread width** rear 55.7" (1415 mm) to 71.5" (1815 mm) front 56.3" (1430 mm) to 80.7" (2050 mm) **Wheelbase** 80.3" (2040 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 1.39 (2.23) second 2.01 (3.23) third 3.02 (4.86) fourth 3.89 (6.26) fifth 5.62 (9.05) sixth 8.46 (13.61) seventh 9.00 (14.49) eighth 13.02 (20.96) ninth 19.58 (31.51) reverse 2.33 (3.75), 6.55 (10.54), 15.14 (24.36) **Clutch** single dry disc operated by foot pedal **Brakes** single wet disc mechanically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2376 engine rpm **Unladen tractor mass** 4950 lb (2245 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick attach: None

Maximum force exerted through whole range: 3591 lbs (16.0 kN)

i) Sustained pressure of the open relief valve: 2728 psi (188 bar)

ii) Pump delivery rate at minimum pressure and rated engine speed: 12.2 GPM (46.2 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 11.5 GPM (43.5 l/min)

Delivery pressure: 2360 psi (163 bar)

Power: 15.8 HHP (11.8 kW)

THREE POINT HITCH PERFORMANCE

Observed maximum pressure psi.(bar) 2796(193)
 Location: remote outlet
 Hydraulic oil temperature: °F(°C) 185(85)
 Location: hydraulic sump
 Category: II
 Quick attach: none

SAE Static Test—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(914)
Lift force on frame lb	6633	5486	5067	4734	3978
" " " " " (kN)	(29.5)	(24.4)	(22.5)	(21.1)	(17.7)

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 128°F (53°C).

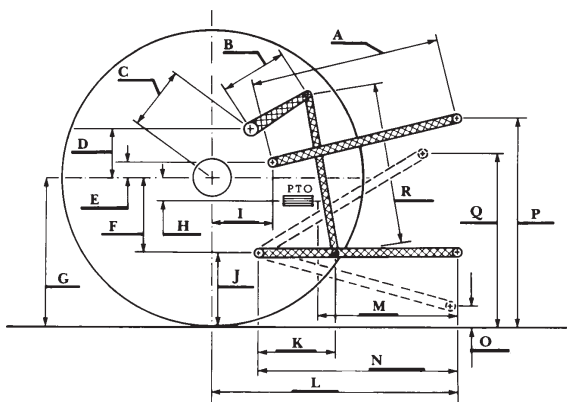
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1892, July 2, 2007.

Roger M. Hoy
 Director

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

	SAE Test		OECD Test	
	inch	mm	inch	mm
A	23.3	590	23.5	597
B	11.0	280	11.0	280
C	13.7	347	13.7	347
D	11.8	300	11.8	300
E	13.2	335	13.2	335
F	6.9	175	6.9	175
G	26.4	670	26.4	670
H	0.4	10	0.4	10
I	15.7	397	15.7	397
J	19.5	495	19.5	495
K	16.1	410	16.1	410
L	38.6	980	38.6	980
M	21.7	550	21.7	550
N	32.6	830	32.6	830
O	8.0	203	8.0	203
P	38.6	980	43.5	1105
Q	32.5	825	32.5	825
R	21.2	540	21.2	540

HITCH DIMENSIONS AS TESTED - NO LOAD



John Deere 5403 Diesel