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2012

Test 2027: John Deere 5101E LTD

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 2027

JOHN DEERE 5101E LIMITED DIESEL

12 SPEED

CHASSIS SERIAL NUMBERS 340000 AND HIGHER

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—543 rpm)					
90.42 (67.42)	2398	5.76 (21.81)	0.448 (0.273)	15.69 (3.09)	
Maximum Power - (1 hour)					
93.85 (69.98)	2200	5.63 (21.30)	0.422 (0.257)	16.68 (3.28)	

VARYING POWER AND FUEL CONSUMPTION

90.42 (67.42)	2398	5.76 (21.81)	0.448 (0.273)	15.69 (3.09)	Air temperature
78.90 (58.84)	2473	5.38 (20.36)	0.480 (0.292)	14.67 (2.89)	77°F (24°C)
60.30 (44.97)	2514	4.60 (14.67)	0.536 (0.326)	13.12 (2.58)	Relative humidity
40.65 (30.31)	2545	3.57 (13.50)	0.617 (0.375)	11.40 (2.24)	37%
20.60 (15.36)	2574	2.51 (8.00)	0.856 (0.520)	8.22 (1.62)	Barometer
0.95 (0.71)	2597	1.56 (5.89)	11.516 (7.005)	0.61 (0.12)	28.58"Hg (96.78 kPa)

Maximum Torque 253 lb.-ft. (343 Nm) at 1701 rpm
Maximum Torque Rise -27.7%
Torque rise at 1900 rpm -21%
Power increase at 2200 rpm -3.8%

TRACTOR SOUND LEVEL WITH CAB

	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 6th(B2) gear	78.4	78.4
Transport in 12th (C4) gear		79.8
Bystander in 12th (C4) gear		84.4

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 18.4-30; 8; 12 (85)
Two 12.4-24; 8; 14 (95)
18.5 in (470 mm)
4405 lb (1998 kg)
3110 lb (1411 kg)
7515 lb (3409 kg)

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

Dates of tests: May 10 - 17, 2012

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) 0.8448 Fuel weight 7.034 lbs/gal (0.843 kg/l) Oil SAE 15W40 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 6.0 hours

ENGINE: Make John Deere Diesel Type four cylinder vertical with turbocharger and air to air aftercooler Serial No. *PE4045L857425* Crankshaft lengthwise Rated engine speed 2400 Bore and stroke 4.19" x 5.00" (106.4 mm x 127.0 mm) Compression ratio 19.0 to 1 Displacement 276 cu in (4517 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 radiator for transmission and hydraulic oil Fuel filter one paper element and sediment bowl Fuel cooler radiator for pump return fuel Muffler underhood Exhaust vertical Cooling medium temperature control one thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 37.6 - 41.4 lb/h (17.1 - 18.8 kg/h) High idle: 2575 - 2650 rpm Turbo boost: nominal 10.9 - 13.8 psi (75 - 95 kPa) as measured 12.2 psi (84 kPa)

CHASSIS: Type front wheel assist Serial No. *1LV5101ETBY440078* Tread width rear 55.8" (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 1.04 (1.68) second 1.42 (2.29) third 1.94 (3.13) fourth 2.60 (4.19) fifth 3.02 (4.86) sixth 4.11 (6.61) seventh 5.60 (9.02) eighth 7.51 (12.08) ninth 8.72 (14.04) tenth 11.87 (19.11) eleventh 16.20 (26.08) twelfth 21.71 (34.94) reverse 1.14 (1.84), 1.55 (2.50), 2.12 (3.41), 2.84 (4.57), 3.29 (5.30), 4.48 (7.21), 6.11 (9.84), 8.19 (13.18), 9.51 (15.31), 12.95 (20.84), 17.68 (28.45), 23.68 (38.11) Clutch single wet 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 2385 engine rpm or 540 rpm at 1721 engine rpm Unladen tractor mass 7340 lb (3329 kg)

HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range:	3213 lbs	(14.3 kN)
i) Sustained pressure of the open relief valve:	2902 psi	(200 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	17.3 GPM	(65.3 l/min)
iii) Pump delivery rate at maximum hydraulic power:	15.7 GPM	(59.5 l/min)
Delivery pressure:	2515 psi	(173 bar)
Power:	23.1 HP	(17.2 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

NOTE: The performance figures on this report apply to tractors with chassis serial numbers 340000 and higher.

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 107°F (41°C).

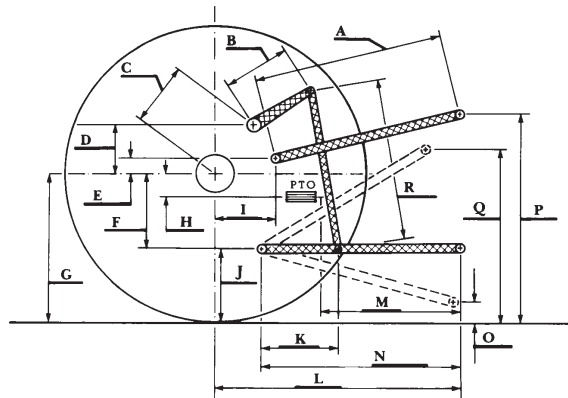
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2027**, July 2, 2012.

Roger M. Hoy
Director

M.A. Hanna
P.J. Jasa
J.D. Luck
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	165	6.5	165
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 @ 1720 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)
58.10 (43.33)	1722	3.56 (13.49)	0.431 (0.263)	16.31 (3.21)
43.50 (32.44)	1725	2.82 (10.68)	0.456 (0.278)	15.42 (3.04)
28.90 (21.55)	1724	2.00 (7.56)	0.486 (0.296)	14.47 (2.85)
14.55 (10.85)	1723	1.32 (4.99)	0.637 (0.388)	11.03 (2.17)
1.00 (0.75)	1728	0.76 (2.89)	5.370 (3.269)	1.31 (0.26)

Normal mode

540 PTO rpm @ 2385 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)
58.25 (43.44)	2389	4.18 (15.83)	0.505 (0.307)	13.93 (2.74)
43.25 (32.25)	2376	3.39 (12.82)	0.551 (0.335)	12.77 (2.51)
28.90 (21.55)	2379	2.62 (9.93)	0.638 (0.389)	11.02 (2.17)
14.50 (10.81)	2380	1.91 (7.22)	0.925 (0.563)	7.60 (1.50)
0.90 (0.67)	2383	1.30 (4.94)	10.194 (6.206)	0.69 (0.14)



John Deere 5101E Ltd Diesel

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University of Nebraska–Lincoln