2013

Test 2075: John Deere 5100E

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 2075
JOHN DEERE 5100E DIESEL
12 SPEED

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

Dates of tests: November 5 - 12, 2013

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

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)					
87.01 *(64.88)*	2398	5.71 *(21.63)*	0.462 *(0.281)*	15.23 *(3.00)*	Fuel used during active exhaust regeneration - 0.76 gal *(2.88 l)* (see Note 1 p.2)
Maximum Power - (1 hour)					
89.49 *(66.73)*	2297	5.62 *(21.27)*	0.441 *(0.268)*	15.93 *(3.14)*	
VARYING POWER AND FUEL CONSUMPTION					
87.01 *(64.88)*	2398	5.71 *(21.63)*	0.462 *(0.281)*	15.23 *(3.00)*	Air temperature
75.13 *(56.02)*	2432	5.18 *(19.61)*	0.485 *(0.295)*	14.50 *(2.86)*	73°F *(23°C)*
56.69 *(42.28)*	2450	4.40 *(16.64)*	0.545 *(0.332)*	12.89 *(2.54)*	Relative humidity
38.05 *(28.37)*	2468	3.57 *(13.51)*	0.659 *(0.401)*	10.66 *(2.10)*	34%
19.17 *(14.30)*	2481	2.75 *(10.42)*	1.009 *(0.614)*	6.96 *(1.37)*	Barometer
0.22 *(0.16)*	2498	1.93 *(6.17)*	61.823 *(37.606)*	0.11 *(0.02)*	28.68"Hg *(97.12 kPa)*

Maximum Torque 256 lb.-ft. *(346 Nm)* at 1599 rpm
Maximum Torque Rise - 33.9%
Torque rise at 1917 rpm - 22%
Power increase at 2297 rpm - 3%

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
At no load in 6th(B2) gear	77.8	77.5
Transport in 12th (C4) gear		79.8
Bystander in 12th (C4) gear		82.5

TIRES AND WEIGHT	Tested Without Ballast
Rear Tires–No., size, ply & psi *(kPa)*	Two 18.4-30;8;12 *(85)*
Front Tires–No., size, ply & psi *(kPa)*	Two 12.4-24;8;16 *(110)*
Height of Drawbar	18.5 in *(470 mm)*
Static Weight with operator– Rear	4490 lb *(2037 kg)*
– Front	3450 lb *(1565 kg)*
– Total	7940 lb *(3602 kg)*

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8442 **Fuel weight** 7.029 lbs/gal *(0.842 kg/l)* **Oil SAE** 15W40 **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** 8.0 hours

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler **Serial No.** *PE4045R038505* **Crankshaft** lengthwise **Rated engine speed** 2400 **Bore and stroke** 4.19" x 5.00" *(106.5 mm x 127.0 mm)* **Compression ratio** 19.0 to 1 **Displacement** 276 cu in *(4525 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 **Exhaust** regenerative particulate filter integrated within an underhood muffler with vertical outlet **Cooling medium temperature control** two thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 38.8 - 42.1 lb/h *(17.6 - 19.1 kg/h)* **High idle:** 2475 - 2525 rpm **Turbo boost:** nominal 18.1 - 19.6 psi *(125 - 135 kPa)* as measured 18.6 psi *(128 kPa)*

CHASSIS: Type front wheel assist **Serial No.** *1LV5100EADY140330* **Tread width** rear 54.8" *(1417 mm)* to 71.7" *(1820 mm)* front 52.8" *(1340 mm)* to 75.0" *(1904 mm)* **Wheelbase** 90.6" *(2300 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** 7765 lb *(3522 kg)*

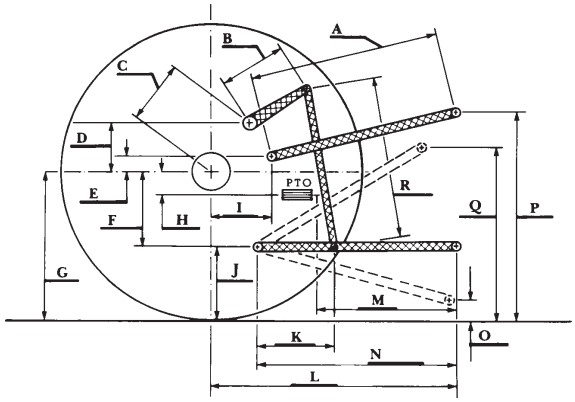
HYDRAULIC PERFORMANCE

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:	2873 psi	*(198 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	16.5 GPM	*(62.3 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	15.3 GPM	*(58.0 l/min)*
Delivery pressure:	2603 psi	*(179 bar)*
Power:	23.3 HP	*(17.4 kW)*

HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	24.1	*613*
B	11.0	*280*
C	14.0	*356*
D	12.2	*311*
E	11.2	*284*
F	6.5	*165*
G	27.4	*695*
H	0.2	*4*
I	15.1	*384*
J	20.9	*530*
K	16.7	*424*
L	39.2	*996*
M	22.4	*570*
N	32.9	*836*
O	8.0	*203*
P	44.9	*1140*
Q	34.0	*864*
R	20.8	*527*



REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The manufacturer declares that the average time between active regenerations is 100 hours, while operated in Auto Filter Cleaning Mode, at rated speed, full load, under steady state conditions.

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 129°F *(54°C)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2075,** January 13, 2014.

Roger M. Hoy
Director

M.F. Kocher
S. Pitla
J.D. Luck
Board of Tractor Test Engineers

Economy mode
540 PTO rpm @1721 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)*
81.76 *(60.97)*	1721	4.44 *(16.81)*	0.382 *(0.232)*	18.40 *(3.62)*
61.01 *(45.50)*	1716	3.48 *(13.17)*	0.401 *(0.244)*	17.54 *(3.46)*
41.13 *(30.67)*	1730	2.58 *(9.77)*	0.441 *(0.268)*	15.93 *(3.14)*
20.51 *(15.29)*	1726	1.75 *(6.62)*	0.601 *(0.366)*	11.69 *(2.30)*
0.23 *(0.17)*	1733	1.03 *(3.90)*	31.176 *(18.964)*	0.23 *(0.05)*

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)*
81.33 *(60.65)*	2377	5.31 *(20.10)*	0.459 *(0.279)*	15.31 *(2.62)*
61.55 *(45.90)*	2399	4.46 *(16.88)*	0.509 *(0.310)*	13.80 *(2.23)*
41.03 *(30.60)*	2392	3.57 *(13.51)*	0.611 *(0.372)*	11.50 *(1.94)*
20.61 *(15.37)*	2400	2.60 *(9.84)*	0.888 *(0.540)*	7.92 *(1.54)*
0.19 *(0.14)*	2392	1.79 *(6.78)*	66.040 *(40.172)*	0.11 *(0.27)*

John Deere 5100E Diesel

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