

NEBRASKA TRACTOR TEST 2075

JOHN DEERE 5100E DIESEL

12 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—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)	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

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; 16 (110)
 18.5 in (470 mm)
 4490 lb (2037 kg)
 3450 lb (1565 kg)
 7940 lb (3602 kg)

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

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)

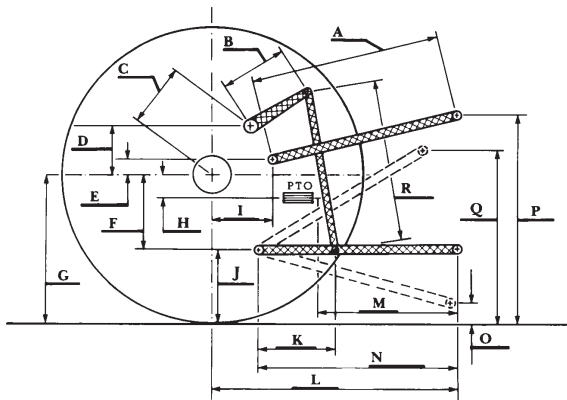
iii) Pump delivery rate at maximum hydraulic power: 15.3 GPM (58.0 l/min)

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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