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2013

## Test 2074: John Deere 5085E

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 2074

## JOHN DEERE 5085E 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
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#### MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—(PTO speed—543 rpm)					
72.88 (54.35)	2398	4.90 (18.54)	0.472 (0.287)	14.88 (2.93)	Fuel used during active exhaust regeneration - 0.85 gal (3.20 l) (see Note 1 p.2)
Maximum Power - (1 hour)					
74.33 (55.43)	2301	4.80 (18.15)	0.454 (0.276)	15.50 (3.05)	

#### VARYING POWER AND FUEL CONSUMPTION

72.88 (54.35)	2398	4.90 (18.54)	0.472 (0.287)	14.88 (2.93)	Air temperature
62.84 (46.86)	2432	4.46 (16.88)	0.499 (0.303)	14.09 (2.78)	73°F (23°C)
47.50 (35.42)	2449	3.92 (14.85)	0.580 (0.353)	12.11 (2.39)	Relative humidity
31.73 (23.66)	2464	3.21 (12.14)	0.711 (0.432)	9.89 (1.95)	28%
16.09 (12.00)	2480	2.63 (8.39)	1.149 (0.699)	6.12 (1.21)	Barometer
0.27 (0.20)	2487	1.79 (6.78)	47.370 (28.814)	0.15 (0.03)	28.70"Hg (97.19 kPa)

Maximum Torque 215 lb.-ft. (291 Nm) at 1550 rpm  
Maximum Torque Rise - 34.8%  
Torque rise at 1900 rpm - 20%  
Power increase at 2301 rpm - 2%

#### TRACTOR SOUND LEVEL WITH CAB

	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 6th(B2) gear	75.3	75.3
Transport in 12th(C4) gear		77.0
Bystander in 12th(C4) gear		82.3

#### 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; 6; 20 (140)  
17.5 in (445 mm)  
4420 lb (2005 kg)  
3360 lb (1524 kg)  
7780 lb (3529 kg)

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

**Dates of tests:** November 4 - 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 8.5 hours

**ENGINE:** Make John Deere Diesel Type four cylinder vertical with turbocharger and air to air intercooler Serial No. \*PE4045R038498\* 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: 34.1 - 36.9 lb/h (15.5 - 16.7 kg/h) High idle: 2475 - 2525 rpm Turbo boost: nominal 16.0 - 18.1 psi (110 - 125 kPa) as measured 17.0 psi (117 kPa)

**CHASSIS:** Type front wheel assist Serial No. \*1LV5085EADY140421\* 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 1.01 (1.63) second 1.37 (2.21) third 1.88 (3.02) fourth 2.52 (4.05) fifth 2.91 (4.69) sixth 3.96 (6.38) seventh 5.41 (8.71) eighth 7.25 (11.67) ninth 8.43 (13.56) tenth 11.46 (18.45) eleventh 15.65 (25.19) twelfth 20.96 (33.74) reverse 1.10 (1.77), 1.50 (2.42), 2.05 (3.30), 2.75 (4.42), 3.18 (5.12), 4.32 (6.96), 5.90 (9.50), 7.91 (12.73), 9.19 (14.79), 12.51 (20.13), 17.08 (27.48), 22.87 (36.81) 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 7605 lb (3450 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:	2922 psi	(201 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	16.4 GPM	(62.1 l/min)
iii) Pump delivery rate at maximum hydraulic power:	15.5 GPM	(58.7 l/min)
Delivery pressure:	2609 psi	(180 bar)
Power:	23.6 HP	(17.6 kW)

**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 138°F (59°C).

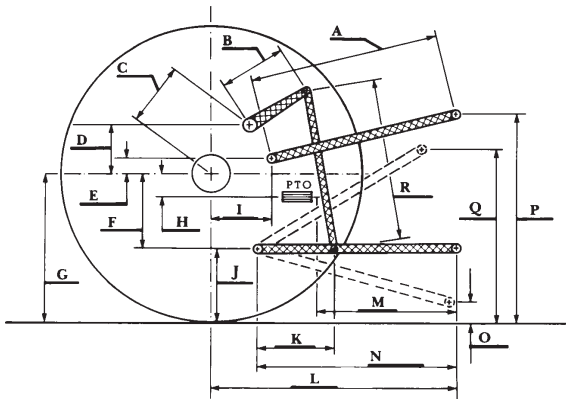
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2074**, January 13, 2014.

Roger M. Hoy  
Director

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

### 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



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)
67.35 (50.22)	1719	3.80 (14.38)	0.396 (0.241)	17.74 (3.49)
50.40 (37.58)	1715	2.98 (11.28)	0.415 (0.252)	16.94 (3.34)
33.68 (25.12)	1723	2.26 (8.56)	0.471 (0.287)	14.92 (2.94)
16.88 (12.59)	1728	1.56 (5.91)	0.650 (0.395)	10.81 (2.13)
0.21 (0.16)	1729	0.99 (3.75)	32.597 (19.829)	0.22 (0.04)

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)
66.99 (49.95)	2368	4.53 (17.15)	0.475 (0.289)	14.80 (2.62)
50.61 (37.74)	2387	3.87 (14.65)	0.538 (0.327)	13.07 (2.23)
33.61 (25.06)	2382	3.22 (12.19)	0.673 (0.409)	10.45 (1.94)
16.73 (12.48)	2385	2.42 (9.16)	1.016 (0.618)	6.92 (1.54)
0.22 (0.16)	2374	1.56 (5.91)	49.741 (30.257)	0.14 (0.27)



**John Deere 5085E Diesel**

Institute of Agriculture and Natural Resources  
University of Nebraska–Lincoln