

# NEBRASKA TRACTOR TEST 2115

## JOHN DEERE 5085M DIESEL

### 16 SPEED

Chassis Serial numbers 700000 and higher

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption Gal/hr (l/h)	Mean Atmospheric Conditions
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>						
<b>Rated Engine Speed—(PTO speed—565 rpm)</b>						
72.80 (54.29)	2197	4.65 (17.59)	0.449 (0.273)	15.66 (3.09)	0.16 (0.59)	Fuel used during active exhaust regeneration-0.68 gal (2.58 l) (see note 1, p.2)
<b>Maximum Power (1 hour)</b>						
72.80 (54.29)	2197	4.65 (17.59)	0.449 (0.273)	15.66 (3.09)	0.16 (0.59)	
<b>Standard Power Take-off Speed (539 rpm)</b>						
72.79 (54.28)	2100	4.50 (17.02)	0.434 (0.264)	16.19 (3.19)	0.16 (0.59)	

#### VARYING POWER AND FUEL CONSUMPTION

72.80 (54.29)	2197	4.65 (17.59)	0.449 (0.273)	15.66 (3.09)	0.16 (0.59)	Air temperature
63.12 (47.07)	2243	4.31 (16.33)	0.481 (0.292)	14.63 (2.88)	0.14 (0.54)	75°F (24°C)
47.83 (35.67)	2262	3.65 (13.83)	0.537 (0.327)	13.09 (2.58)	0.12 (0.45)	Relative humidity
32.33 (24.11)	2294	3.00 (11.35)	0.652 (0.397)	10.79 (2.12)	0.11 (0.40)	46%
16.25 (12.12)	2300	2.42 (9.16)	1.047 (0.637)	6.72 (1.32)	0.10 (0.40)	Barometer
0.95 (0.71)	2300	1.91 (7.24)	14.201 (8.638)	0.50 (0.10)	0.14 (0.54)	28.79" Hg (97.51 kPa)

Maximum torque - 225 lb.-ft. (305 Nm) at 1497 rpm  
 Maximum torque rise - 29.3%  
 Torque rise at 1750 engine rpm - 19%  
 Power increase - 0%

<b>TRACTOR SOUND LEVEL WITHOUT CAB</b>	<b>Front Wheel Drive</b>	
	<b>Engaged dB(A)</b>	<b>Disengaged dB(A)</b>
At no load in 7th (B3) gear	84.6	84.5
Transport in 16th (D4) gear		88.2
Bystander in 16th (D4) gear		80.5

Horizontal distances of drawbar hitch point behind rear wheel axis - 28.5" (725 mm), 32.5" (825 mm), 34.4" (875 mm)

#### 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; 18 (125)  
 16.5 in (420 mm)  
 5015 lb (2275 kg)  
 3270 lb (1483 kg)  
 8285 lb (3758 kg)

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

**Dates of tests:** April 16 - 20, 2015

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

**CONSUMABLE Fluids, OIL and TIME:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8447 **Fuel weight** 7.033 lbs/gal (0.843 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil** SAE 10W30 **API service classification** CJ-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Front axle lubricant** SAE 80W90 **API GL-5** **Total time engine was operated** 9.5 hours

**ENGINE: Make** John Deere **Diesel Type** four cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** \*PE4045U006492\* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.19" x 5.00" (106.5 mm x 127.0 mm) **Compression ratio** 16.9 to 1 **Displacement** 276 cu in (4525 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Fuel cooler** radiator for return fuel **Exhaust** regenerative aftertreatment system consisting of DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) integrated within a vertical muffler **Cooling medium temperature control** two thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS:** **Fuel rate:** 31.1 - 33.5 lb/h (14.1 - 15.2 kg/h) **High idle:** 2275 - 2325 rpm **Turbo boost:** nominal 16.0 - 18.9 psi (110 - 130 kPa) as measured 17.6 psi (121 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** \*1LV5085MTEJ733786\* **Tread width** rear 59.4" (1508 mm) to 71.4" (1813 mm) front 52.8" (1342 mm) to 77.0" (1957 mm) **Wheelbase** 92.5" (2350 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 1.16 (1.87) second 1.48 (2.38) third 1.80 (2.89) fourth 2.14 (3.45) fifth 2.80 (4.50) sixth 3.57 (5.75) seventh 4.33 (6.97) eighth 5.18 (8.33) ninth 6.85 (11.03) tenth 8.76 (14.09) eleventh 10.59 (17.05) twelfth 10.61 (17.07) thirteenth 12.68 (20.41) fourteenth 13.53 (21.77) fifteenth 16.39 (26.38) sixteenth 19.60 (31.54)

## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

		<u>lift cylinders</u>
Maximum force exerted through whole range:	4858 lbs	(21.6 kN) (2 x 56 mm)
	6390 lbs	(28.4 kN) (2 x 63 mm)
i) Sustained pressure of the open relief valve:	2963 psi	(204 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	19.7 GPM	(74.4 l/min)
iii) Pump delivery rate at maximum hydraulic power:	17.8 GPM	(67.5 l/min)
Delivery pressure:	2444 psi	(169 bar)
Power:	25.4 HP	(19.0 kW)

reverse 1.28 (2.06), 1.63 (2.62), 1.98 (3.18), 2.36 (3.80), 3.08 (4.96), 3.93 (6.33), 4.77 (7.68), 5.70 (9.18), 7.56 (12.16), 9.64 (15.52), 11.68 (18.79), 11.69 (18.81), 13.98 (22.49), 14.91 (23.99), 18.07 (29.08), 21.60 (34.76) **Clutch** wet disc hydraulically actuated by foot pedal **Brakes** wet disc hydraulically actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2100 engine rpm, Economy PTO 540 rpm at 1645 engine rpm **Unladen tractor mass** 8110 lb (3679 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

### HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	25.2	640
B	12.6	320
C	17.7	449
D	15.0	380
E	14.8	375
F	8.8	223
G	29.3	745
H	0.2	4
I	15.4	390
J	20.5	522
K	17.5	444
L	41.7	1060
M	23.0	585
N	33.1	840
O	9.1	230
P	44.6	1132
Q	36.2	919
R	27.8	705

**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. A 3% power increase was observed during the active exhaust regeneration.

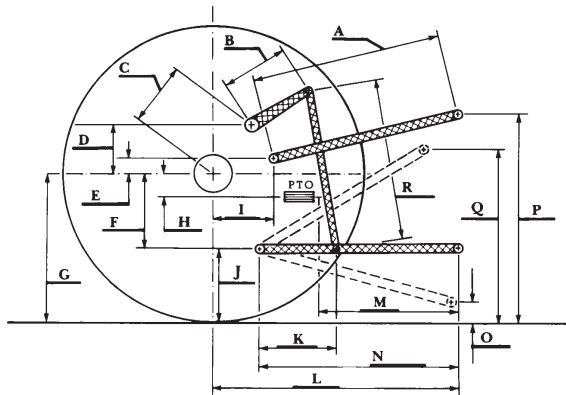
**NOTE 2:** The performance data on this report applies to tractors with chassis serial numbers that end with 700000 and higher.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor did not meet the manufacturer's claims of 4% power bulge and 30% torque rise.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2115**, May 13, 2015.

Roger M. Hoy  
Director

M.F. Kocher  
P.J. Jasa  
J.D. Luck  
Board of Tractor Test Engineers



### RECOMMENDED CITATION FORMAT:

NTTL.(2018). Nebraska Tractor test 2115 for John Deere 5085M Diesel.

Lincoln, NE:Nebraska Tractor Test Laboratory. Retrieved from <http://tractortestlab.unl.edu>

## Shiftable PTO Performance

### Economy mode

540 PTO rpm @ 1645 engine rpm

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption		D.E.F. Consumption	
		Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Gal/hr (l/h)
67.67 (50.46)	1644	3.73 (14.11)	0.387 (0.236)	18.16 (3.58)	0.19 (0.72)
50.68 (37.79)	1640	2.94 (11.12)	0.408 (0.248)	17.25 (3.40)	0.14 (0.52)
33.93 (25.30)	1649	2.18 (8.26)	0.452 (0.275)	15.55 (3.06)	0.10 (0.38)
16.85 (12.56)	1647	1.56 (5.92)	0.652 (0.397)	10.78 (2.12)	0.09 (0.34)
0.82 (0.61)	1645	1.13 (4.27)	9.666 (5.880)	0.73 (0.14)	0.11 (0.41)

### Normal mode

540 PTO rpm @ 2100 engine rpm

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption		D.E.F. Consumption	
		Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Gal/hr (l/h)
67.52 (50.35)	2097	4.20 (15.88)	0.437 (0.266)	16.09 (3.17)	0.14 (0.52)
51.01 (38.04)	2110	3.57 (13.51)	0.492 (0.299)	14.29 (2.81)	0.11 (0.43)
33.87 (25.25)	2104	2.78 (10.50)	0.576 (0.351)	12.20 (2.40)	0.10 (0.38)
16.86 (12.57)	2097	2.05 (7.75)	0.854 (0.520)	8.23 (1.62)	0.10 (0.38)
0.83 (0.62)	2106	1.61 (6.09)	13.618 (8.283)	0.52 (0.10)	0.13 (0.49)



**JOHN DEERE 5085M DIESEL**

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