

# NEBRASKA OECD TRACTOR TEST 2197—SUMMARY 1145

## JOHN DEERE 5125R DIESEL

### 16 SPEED

Open center hydraulic system

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption		D.E.F. Consumption		Mean Atmospheric Conditions
		Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Gal/hr (l/h)	
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>						
<b>Rated Engine Speed—(PTO speed—566 rpm)</b>						
112.32 (83.75)	2201	6.52 (24.69)	0.408 (0.248)	17.22 (3.39)	0.31 (1.18)	Fuel used during active exhaust regeneration-0.40 gal (1.50 l) (see note 1, p.2)
<b>Standard Power Take-off Speed (540 rpm)</b>						
117.91 (87.92)	2100	6.64 (25.14)	0.396 (0.241)	17.75 (3.50)	0.31 (1.16)	
<b>Maximum Power (1 hour)</b>						
122.41 (91.28)	1902	6.62 (25.06)	0.380 (0.231)	18.49 (3.64)	0.29 (1.12)	

#### VARYING POWER AND FUEL CONSUMPTION

112.32 (83.75)	2201	6.52 (24.69)	0.408 (0.248)	17.22 (3.39)	0.31 (1.18)	Air temperature
98.25 (73.27)	2268	5.98 (22.64)	0.428 (0.260)	16.43 (3.24)	0.26 (0.98)	73°F (23°C)
74.22 (55.34)	2282	4.87 (18.45)	0.461 (0.281)	15.23 (3.00)	0.21 (0.78)	Relative humidity
49.88 (37.19)	2298	3.81 (14.43)	0.537 (0.327)	13.08 (2.58)	0.11 (0.40)	20%
25.08 (18.70)	2315	2.79 (10.58)	0.782 (0.476)	8.98 (1.77)	0.05 (0.20)	Barometer
0.72 (0.53)	2330	1.91 (7.24)	18.728 (11.392)	0.38 (0.07)	0.03 (0.10)	28.94" Hg (98.00 kPa)

Maximum torque - 375 lb.-ft. (509 Nm) at 1349 rpm  
 Maximum torque rise - 40.0%  
 Torque rise at 1761 engine rpm - 34%  
 Power increase at 1902 engine rpm - 9.0%

#### DRAWBAR PERFORMANCE UNBALLASTED - FRONT DRIVE ENGAGED FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C)	Barom. inch Hg (kPa)	
<b>Power at Rated Engine Speed—8th(B4) Gear</b>										
98.79 (73.66)	6719 (29.89)	5.52 (8.88)	2200	5.9	0.463 (0.282)	15.17 (2.99)	0.014 (0.009)	209 (98)	67 (19)	28.07 (95.06)
<b>75% of Pull at Rated Engine Speed—8th(B4) Gear</b>										
78.14 (58.27)	5035 (22.40)	5.82 (9.37)	2276	4.0	0.482 (0.293)	14.56 (2.87)	0.022 (0.013)	192 (89)	45 (7)	28.60 (96.85)
<b>50% of Pull at Rated Engine Speed—8th(B4) Gear</b>										
53.11 (39.60)	3348 (14.89)	5.95 (9.58)	2293	2.6	0.554 (0.337)	12.69 (2.50)	0.021 (0.013)	191 (88)	46 (8)	28.60 (96.85)
<b>75% of Pull at Reduced Engine Speed—10th(C2) Gear</b>										
78.27 (58.37)	5057 (22.49)	5.81 (9.34)	1784	4.1	0.409 (0.249)	17.16 (3.38)	0.027 (0.016)	191 (88)	49 (9)	28.57 (96.75)
<b>50% of Pull at Reduced Engine Speed—10th(C2) Gear</b>										
53.31 (39.75)	3347 (14.89)	5.98 (9.62)	1808	2.6	0.447 (0.272)	15.72 (3.10)	0.022 (0.013)	186 (85)	50 (10)	28.56 (96.72)

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

**Dates of tests:** April 9 - 24, 2018

**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)** 0.8434 **Fuel weight** 7.023 lbs/gal (0.842 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** John Deere Hy-Gard fluid **Total time engine was operated** 16.5 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.** \*PE4045U059789\* **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) within an underhood muffler and vertical exhaust **Cooling medium temperature control** two thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS: Fuel rate:** 43.2 - 46.7 lb/h (19.6 - 21.2 kg/h) **High idle:** 2300 - 2350 rpm **Turbo boost:** nominal 18.9 - 21.8 psi (130 - 150 kPa) as measured 19.9 psi (137 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** \*1LV5125RJHH400265\* **Tread width** rear 60.0" (1525 mm) to 71.6" (1819 mm) front 58.6" (1488 mm) to 81.5" (2070 mm) **Wheelbase** 88.6" (2250 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 1.35 (2.17) second 1.67 (2.68) third 2.07 (3.33) fourth 2.54 (4.08) fifth 3.13 (5.03) sixth 3.86 (6.21) seventh 4.78 (7.70) eighth 5.87 (9.45) ninth 6.05 (9.74) tenth 7.48 (12.03) eleventh 9.26 (14.90) twelfth 11.36 (18.28) thirteenth 13.55 (21.81) fourteenth 16.73 (26.93) fifteenth 20.73 (33.36) sixteenth 25.43 (40.93)

## DRAWBAR PERFORMANCE

### UNBALLASTED - FRONT DRIVE ENGAGED-2200 ENGINE RPM MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
6th(B2) Gear										
88.34 (65.87)	9705 (43.17)	3.42 (5.50)	2262	13.9	0.510 (0.310)	13.76 (2.71)	0.025 (0.015)	196 (91)	41 (5)	28.66 (97.04)
7th(B3) Gear										
95.11 (70.92)	8221 (36.57)	4.34 (6.98)	2200	9.2	0.483 (0.294)	14.54 (2.86)	0.023 (0.014)	209 (98)	68 (20)	28.06 (95.02)
8th(B4) Gear										
98.79 (73.66)	6719 (29.89)	5.52 (8.88)	2200	5.9	0.463 (0.282)	15.17 (2.99)	0.014 (0.009)	209 (98)	67 (19)	28.07 (95.06)
9th(C1) Gear										
99.54 (74.22)	6569 (29.22)	5.68 (9.14)	2200	5.8	0.463 (0.282)	15.17 (2.99)	0.018 (0.011)	206 (97)	68 (20)	28.06 (95.02)
10th(C2) Gear										
101.15 (75.43)	5323 (23.68)	7.13 (11.47)	2200	4.4	0.455 (0.277)	15.45 (3.04)	0.016 (0.010)	211 (99)	70 (21)	28.05 (94.99)
11th(C3) Gear										
101.30 (75.54)	4254 (18.92)	8.93 (14.37)	2201	3.3	0.452 (0.275)	15.52 (3.06)	0.015 (0.009)	215 (102)	72 (22)	28.06 (95.02)

### UNBALLASTED - FRONT DRIVE ENGAGED-1900 ENGINE RPM MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
6th(B2) Gear										
89.38 (66.65)	9722 (43.25)	3.45 (5.55)	2261	13.1	0.505 (0.307)	13.92 (2.74)	0.024 (0.015)	194 (90)	41 (5)	28.65 (97.00)
7th(B3) Gear										
100.71 (75.10)	8997 (40.02)	4.20 (6.76)	2144	9.8	0.463 (0.282)	15.16 (2.99)	0.024 (0.015)	196 (91)	42 (6)	28.65 (97.00)
8th(B4) Gear										
102.56 (76.48)	8417 (37.44)	4.57 (7.35)	1900	9.7	0.452 (0.275)	15.54 (3.06)	0.018 (0.011)	212 (100)	67 (20)	28.06 (95.02)
9th(C1) Gear										
103.64 (77.28)	8224 (36.58)	4.73 (7.60)	1900	9.4	0.448 (0.272)	15.68 (3.09)	0.016 (0.010)	211 (99)	70 (21)	28.06 (95.01)
10th(C2) Gear										
107.87 (80.43)	6700 (29.80)	6.04 (9.72)	1900	6.3	0.430 (0.261)	16.35 (3.22)	0.014 (0.009)	214 (101)	71 (22)	28.05 (94.99)
11th(C3) Gear										
108.86 (81.17)	5360 (23.84)	7.62 (12.26)	1901	4.5	0.425 (0.258)	16.54 (3.26)	0.013 (0.008)	215 (102)	73 (23)	28.06 (95.01)
12th(C4) Gear										
110.08 (82.09)	4373 (19.45)	9.44 (15.19)	1900	3.5	0.422 (0.257)	16.65 (3.28)	0.014 (0.008)	215 (101)	74 (23)	28.07 (95.04)

Horizontal distances of drawbar hitch point behind rear wheel axis - 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 460/85R30;\*\*,12 (85)  
 Two 320/85R24;\*\*\*;14 (95)  
 16.5 in (420 mm)  
 6090 lb (2762 kg)  
 3730 lb (1692 kg)  
 9820 lb (4454 kg)

reverse 1.44 (2.32), 1.78 (2.87), 2.21 (3.55), 2.71 (4.36), 3.34 (5.37), 4.12 (6.63), 5.11 (8.22), 6.26 (10.08), 6.46 (10.39), 7.99 (12.84), 9.88 (15.90), 12.12 (19.51), 14.46 (23.27), 17.86 (28.74), 22.12 (35.60), 27.15 (43.69) **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, 1000 rpm at 2103 engine rpm **Unladen tractor mass** 9645 lb (4375 kg)

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

**NOTE 1:** The manufacturer declares that the average time between active regenerations is 150 hours. A 6% power decrease was observed during the active exhaust regeneration.

**NOTE 2:** The performance data on this report applies to tractors with an open center hydraulic system.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor exceeded the 73 dB(A) sound power claim, with front drive engaged, by 31.8% (1.2 dB(A)). The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2197**, Nebraska Summary 1145, June 15, 2018 .

Roger M. Hoy  
 Director

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

## Shiftable PTO Performance

### Economy mode 540 PTO rpm @ 1645 engine rpm

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)
116.48 (86.86)	1644	6.06 (22.94)	0.365 (0.222)	19.22 (3.79)	0.30 (1.15)
87.26 (65.07)	1642	4.60 (17.40)	0.370 (0.225)	18.98 (3.74)	0.23 (0.85)
58.28 (43.46)	1643	3.25 (12.30)	0.392 (0.238)	17.94 (3.53)	0.15 (0.55)
29.14 (21.73)	1642	2.01 (7.60)	0.484 (0.294)	14.51 (2.86)	0.10 (0.38)
0.64 (0.48)	1642	1.10 (4.17)	12.113 (7.380)	0.58 (0.11)	0.03 (0.12)

### Normal mode 540 PTO rpm @ 2100 engine rpm

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)
116.48 (86.86)	2097	6.53 (24.73)	0.394 (0.240)	17.83 (3.51)	0.30 (1.15)
87.31 (65.11)	2098	5.13 (19.41)	0.412 (0.251)	17.03 (3.35)	0.24 (0.91)
58.33 (43.50)	2101	3.83 (14.48)	0.461 (0.280)	15.25 (3.00)	0.14 (0.53)
29.15 (21.74)	2098	2.61 (9.88)	0.629 (0.382)	11.17 (2.20)	0.02 (0.07)
0.64 (0.48)	2100	1.61 (6.08)	17.534 (10.665)	0.40 (0.08)	0.01 (0.03)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th(B3) gear	74.2	73.0
Transport in 16th (D4) gear		75.5
Bystander in 16th (D4) gear		83.5

## HYDRAULIC PERFORMANCE

CATEGORY: II

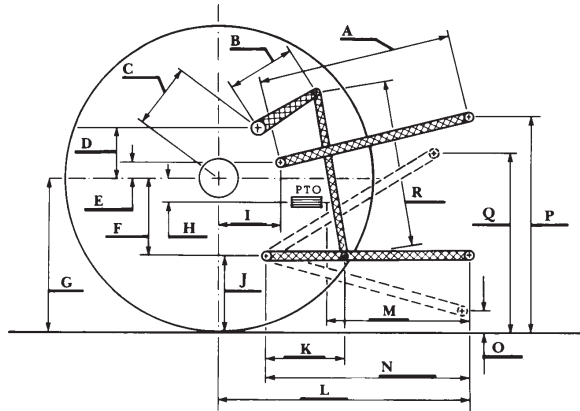
Quick Attach: None

OECD Static test

		<u>lift cylinders</u>	
Maximum force exerted through whole range:	7720 lbs (34.3 kN)	(2 x 75 mm)	
	8678 lbs (38.6 kN)	(2 x 80 mm)	
		<u>single outlet set</u>	<u>two outlet sets combined</u>
i) Sustained pressure of the open relief valve:	2792 psi (192 bar)	2886 psi (199 bar)	
ii) Pump delivery rate at minimum pressure and rated engine speed:	20.8 GPM (78.8 l/min)	20.9 GPM (79.2 l/min)	
iii) Pump delivery rate at maximum hydraulic power:	19.9 GPM (75.2 l/min)	20.0 GPM (75.9 l/min)	
Delivery pressure:	2457 psi (169 bar)	2585 psi (178 bar)	
Power:	28.5 HP (21.2 kW)	30.2 HP (22.5 kW)	

## HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	26.4	670
B	14.1	358
C	17.7	449
D	15.0	380
E	14.4	365
F	8.8	223
G	31.3	795
H	0.2	4
I	14.4	365
J	22.5	572
K	17.5	444
L	41.7	1060
M	23.0	585
N	33.1	840
O	9.1	230
P	46.5	1182
Q	38.4	975
R	32.3	820



### RECOMMENDED CITATION FORMAT:

NTTL.(2018). Nebraska OECD tractor test 2197 for John Deere 5125R OC Diesel.

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



### JOHN DEERE 5125R DIESEL

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University of Nebraska–Lincoln