2011

Test 2005: John Deere 7215R

Nebraska Tractor Test Lab
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NEBRASKA OECD TRACTOR TEST 2005–SUMMARY 788
JOHN DEERE 7215R COMMANDQUAD DIESEL
20 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—1077 rpm)					
190.20 *(141.83)*	2100	10.81 *(40.90)*	0.398 *(0.242)*	17.60 *(3.47)*	
Standard Power Take-off Speed (1000 rpm)					
213.07 *(158.88)*	1950	11.71 *(44.33)*	0.385 *(0.234)*	18.19 *(3.58)*	
Maximum Power (1 hour)					
216.29 *(161.29)*	1800	11.65 *(44.10)*	0.377 *(0.229)*	18.56 *(3.66)*	
VARYING POWER AND FUEL CONSUMPTION					
190.20 *(141.83)*	2100	10.81 *(40.90)*	0.398 *(0.242)*	17.60 *(3.47)*	Air temperature
166.81 *(124.39)*	2154	9.75 *(36.91)*	0.409 *(0.249)*	17.11 *(3.37)*	74°F *(23°C)*
125.12 *(93.30)*	2164	7.80 *(29.51)*	0.436 *(0.265)*	16.05 *(3.16)*	Relative humidity
83.78 *(62.48)*	2173	5.72 *(21.66)*	0.478 *(0.291)*	14.64 *(2.88)*	55%
42.05 *(31.36)*	2183	4.02 *(15.23)*	0.670 *(0.408)*	10.45 *(2.06)*	Barometer
4.90 *(3.66)*	2184	2.81 *(10.63)*	4.008 *(2.438)*	1.75 *(0.34)*	28.62" Hg *(96.92 kPa)*

Maximum torque - 698 lb.-ft. *(947 Nm)* at 1599 rpm
Maximum torque rise - 46.4%
Torque rise at 1700 engine rpm - 40%
Power increase at 1800 engine rpm - 13.7%

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)*	Temp.°F cool-ing med	*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—7th (B3) Gear									
172.34 *(128.51)*	12513 *(55.66)*	5.17 *(8.31)*	2100	2.6	0.442 *(0.269)*	15.83 *(3.12)*	216 *(102)*	68 *(20)*	28.71 *(97.22)*
75% of Pull at Maximum Power—7th (B3) Gear									
134.62 *(100.39)*	9431 *(41.95)*	5.36 *(8.62)*	2158	1.8	0.474 *(0.288)*	14.77 *(2.91)*	211 *(99)*	73 *(23)*	28.63 *(96.95)*
50% of Pull at Maximum Power—7th (B3) Gear									
90.81 *(67.71)*	6285 *(27.96)*	5.42 *(8.72)*	2169	1.2	0.535 *(0.325)*	13.09 *(2.58)*	209 *(98)*	73 *(23)*	28.63 *(96.95)*
75% of Pull at Reduced Engine Speed—10th (C2) Gear									
134.99 *(100.66)*	9405 *(41.83)*	5.38 *(8.66)*	1633	1.8	0.429 *(0.261)*	16.30 *(3.21)*	207 *(97)*	74 *(23)*	28.63 *(96.95)*
50% of Pull at Reduced Engine Speed—10th (C2) Gear									
90.36 *(67.38)*	6204 *(27.59)*	5.46 *(8.79)*	1646	1.1	0.472 *(0.287)*	14.83 *(2.92)*	207 *(97)*	73 *(23)*	28.63 *(96.95)*

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

Dates of tests: October 12-14, 2011

Manufacturer: John Deere Tractor Works, 3500 East Donald Street, P.O. Box 270, Waterloo Ia, 50704-0270

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.8409 **Fuel weight** 7.002 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **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:** 18.0 hours

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with two turbochargers and air to air aftercooler **Serial No.***PE6068R001464* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 4.19 x 5.00"*(106.5 mm x 127.0 mm)* **Compression ratio** 17.2 to 1 **Displacement** 414 cu in *(6788 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 and prestrainer **Fuel cooler** radiator for pump return fuel **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 72.8 - 78.7 lb/h *(33.0 -35.7 kg/h)* **High idle:** 2150 - 2250 rpm **Turbo boost:** nominal 24.7 - 28.3 psi *(170 - 195 kPa)* as measured 27.0 psi *(186 kPa)*

CHASSIS: Type front wheel assist with duals **Serial No.***1RW7215RCBC001651* **Tread width** rear 60.0" *(1524 mm)* to 128.9" *(3272 mm)* front 60.0" *(1524 mm)* to 88.0" *(2235 mm)* **Wheelbase** 115.2" *(2925 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (4) range operator controlled power shift **Nominal travel speeds mph *(km/h)*** first 1.74 *(2.80)* second 2.09 *(3.37)* third 2.51 *(4.03)* fourth 3.07 *(4.94)* fifth 3.68 *(5.93)* sixth 4.43 (7.*14)* seventh 5.31 *(8.55)* eighth 5.86 *(9.43)* ninth 6.51 *(10.47)* tenth 7.06 *(11.36)* eleventh 8.45 *(13.60)* twelfth 10.35 *(16.66)* thirteenth 10.85 *(17.46)* fourteenth 13.06 *(21.03)* fifteenth 15.65 *(25.18)* sixteenth 19.17 *(30.85)* seventeenth 19.80 *(31.86)* eighteenth 23.84 *(38.37)* nineteenth 26.72 *(43.00)* twentieth 26.72 *(43.00)* electronically limited reverse 1.81 *(2.92)*, 2.18 *(3.51)*, 2.61 *(4.21)*, 3.20 *(5.15)*, 3.84 *(6.18)*, 4.63 *(7.45)*, 5.54 *(8.91)*, 6.11 *(9.84)*, 6.79 *(10.93)*, 7.36 *(11.85)*, 8.82 *(14.19)*, 10.81 *(17.39)*, 11.32 *(18.22)*, 13.63 *(21.94)*, 16.33 *(26.28)*, 20.00 *(32.19)*, 20.66 *(33.25)*, 24.87 *(40.03)*, 26.72 *(43.00)*, 26.72 *(43.00)* electronically limited

DRAWBAR PERFORMANCE

UNBALLASTED - FRONT DRIVE ENGAGED-2100 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)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
				3rd(A3) Gear					
127.97 *(95.43)*	20652 *(91.86)*	2.33 *(3.74)*	2157	9.5	0.513 *(0.312)*	13.66 *(2.69)*	207 *(97)*	54 *(12)*	28.71 *(97.22)*
				4th(A4) Gear					
152.87 *(114.00)*	20396 *(90.72)*	2.81 *(4.52)*	2117	8.9	0.492 *(0.299)*	14.24 *(2.80)*	209 *(98)*	57 *(14)*	28.71 *(97.22)*
				5th(B1) Gear					
167.67 *(125.03)*	18002 *(80.07)*	3.49 *(5.62)*	2100	5.1	0.454 *(0.276)*	15.41 *(3.04)*	208 *(98)*	62 *(17)*	28.73 *(97.29)*
				6th(B2) Gear					
170.22 *(126.93)*	14937 *(66.44)*	4.28 *(6.88)*	2100	3.4	0.448 *(0.273)*	15.63 *(3.08)*	217 *(103)*	67 *(20)*	28.71 *(97.22)*
				7th(B3) Gear					
172.34 *(128.51)*	12513 *(55.66)*	5.17 *(8.31)*	2100	2.6	0.442 *(0.269)*	15.83 *(3.12)*	216 *(102)*	68 *(20)*	28.71 *(97.22)*
				8th(C1) Gear					
170.20 *(126.92)*	11153 *(49.61)*	5.73 *(9.21)*	2100	2.3	0.446 *(0.271)*	15.70 *(3.09)*	220 *(104)*	70 *(21)*	28.68 *(97.12)*
				9th (B4) Gear					
169.11 *(126.10)*	9958 *(44.30)*	6.37 *(10.24)*	2100	2.0	0.448 *(0.272)*	15.65 *(3.08)*	219 *(104)*	69 *(21)*	28.70 *(97.19)*
				10th(C2) Gear					
170.11 *(126.85)*	9211 *(40.97)*	6.93 *(11.14)*	2099	1.8	0.448 *(0.273)*	15.62 *(3.08)*	219 *(104)*	71 *(22)*	28.67 *(97.09)*
				11th (C3) Gear					
169.34 *(126.28)*	7636 *(33.96)*	8.32 *(13.38)*	2100	1.5	0.455 *(0.277)*	15.38 *(3.03)*	219 *(104)*	71 *(22)*	28.67 *(97.09)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 6th (B2) gear	70.8	70.5
Transport speed - no load - 19th (E3) gear		71.3
Bystander in 19th (E3) gear		82.6

TIRES AND WEIGHT — **Tested Without Ballast**

Rear Tires - No., size, ply & psi*(kPa)*	Four 480/80R46;***;12*(85)*
Front Tires - No., size, ply & psi*(kPa)*	Two 16.9R30;***;15*(105)*
Height of Drawbar	18.5 in *(470 mm)*
Static Weight with operator - Rear	14250 lb *(6464 kg)*
- Front	7315 lb *(3318 kg)*
- Total	21565 lb *(9782 kg)*

Clutch wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1958 engine rpm or 1000 rpm at 1950 engine rpm **Unladen tractor mass** 21390 lb *(9702 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: During testing the engine was operated for 18.0 hours. During this period, the tractor experienced one active exhaust filter cleaning while operated in Auto Filter Cleaning Mode. This occured after 9.5 hours of operation.

NOTE 2: The manufacturer declared that the active exhaust filter cleanings consume an average of 0.04 gal/hr *(0.15 l/hr)* across total tractor use. Fuel consumed during the active exhaust filter cleanings will normally be less than 1% of the total fuel consumed. The manufacturer declared that no active exhaust filter cleanings occured during 12 hours of continuous operation of the tractor in the Auto Filter Cleaning Mode at 30% loading and the engine speed at which the maximum torque occurs.

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)*. The pull in 3rd (A3) gear was limited to avoid excessive tractor power hop. 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. **2005**, Nebraska Summary 788, October 2, 2012.

Roger M. Hoy
Director

M.A. Hanna
P.J. Jasa
J.D. Luck
Board of Tractor Test Engineers

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED - 1800 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)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
				3rd(A3)Gear					
128.37 *(95.72)*	20715 *(92.14)*	2.33 *(3.74)*	2156	9.6	0.513 *(0.312)*	13.64 *(2.69)*	207 *(97)*	55 *(13)*	28.71 *(97.22)*
				4th(A4)Gear					
152.98 *(114.08)*	20371 *(90.61)*	2.82 *(4.53)*	2118	8.9	0.494 *(0.300)*	14.18 *(2.79)*	209 *(98)*	57 *(14)*	28.71 *(97.22)*
				5th(B1)Gear					
173.77 *(129.58)*	19537 *(86.90)*	3.34 *(5.38)*	2046	6.9	0.463 *(0.282)*	15.12 *(2.98)*	213 *(100)*	63 *(17)*	28.72 *(97.26)*
				6th(B2)Gear					
187.02 *(139.46)*	19027 *(84.64)*	3.69 *(5.94)*	1867	6.4	0.445 *(0.270)*	15.75 *(3.10)*	218 *(103)*	68 *(20)*	28.71 *(97.22)*
				7th(B3)Gear					
194.10 *(144.74)*	16722 *(74.38)*	4.36 *(7.01)*	1800	4.2	0.425 *(0.259)*	16.46 *(3.24)*	219 *(104)*	68 *(20)*	28.71 *(97.22)*
				8th(C1)Gear					
193.68 *(144.42)*	14993 *(66.69)*	4.85 *(7.80)*	1799	3.5	0.426 *(0.259)*	16.44 *(3.24)*	220 *(104)*	70 *(21)*	28.68 *(97.12)*
				9th(B4)Gear					
194.16 *(144.79)*	13473 *(59.93)*	5.41 *(8.70)*	1802	2.9	0.426 *(0.259)*	16.42 *(3.23)*	219 *(104)*	70 *(21)*	28.70 *(97.19)*
				10th(C2)Gear					
194.31 *(144.90)*	12383 *(55.08)*	5.89 *(9.47)*	1800	2.6	0.425 *(0.258)*	16.49 *(3.25)*	220 *(104)*	71 *(22)*	28.67 *(97.09)*
				11th(C3)Gear					
195.34 *(145.67)*	10336 *(45.97)*	7.09 *(11.40)*	1800	2.1	0.424 *(0.258)*	16.53 *(3.26)*	220 *(104)*	72 *(22)*	28.66 *(97.05)*
				12th(C4)Gear					
192.08 *(143.23)*	8254 *(36.72)*	8.73 *(14.04)*	1802	1.6	0.435 *(0.265)*	16.10 *(3.17)*	220 *(104)*	72 *(22)*	28.66 *(97.05)*

HYDRAULIC PERFORMANCE

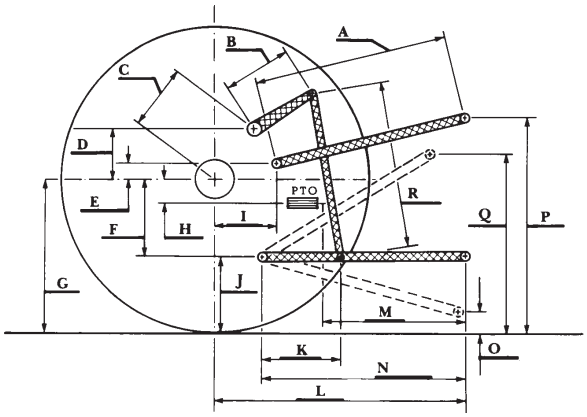
CATEGORY: III
Quick Attach: Yes
OECD Static test

		lift cylinders	
Maximum force exerted through whole range:	12408 lbs *(55.2 kN)* (2 x 90 mm)		
	15324 lbs *(68.2 kN)* (2 x 100 mm)		
	45 cc pump	63 cc pump	85 cc pump
i) Sustained pressure at compensator cutoff:	2944 psi *(203 bar)*	2899 psi *(200 bar)*	2943 psi *(203 bar)*
	three outlet sets combined		
ii) Pump delivery rate at minimum pressure and rated engine speed:	36.0 GPM *(136.4 l/min)*	47.0 GPM *(177.9 l/min)*	62.4 GPM *(236.2 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	34.9 GPM *(132.3 l/min)*	46.3 GPM *(175.2 l/min)*	61.6 GPM *(233.3 l/min)*
Delivery pressure:	2815 psi *(194 bar)*	2663 psi *(184 bar)*	2542 psi *(175 bar)*
Power:	57.4 HP *(42.8 kW)*	71.9 HP *(53.6 kW)*	91.4 HP *(68.1 kW)*
	single outlet set		
ii) Pump delivery rate at minimum pressure and rated engine speed:	35.6 GPM *(134.8 l/min)*	37.2 GPM *(140.8 l/min)*	38.4 GPM *(145.5 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	35.3 GPM *(133.6 l/min)*	37.1 GPM *(140.6 l/min)*	38.0 GPM *(143.8 l/min)*
Delivery pressure:	2364 psi *(163 bar)*	2134 psi *(147 bar)*	2239 psi *(154 bar)*
Power:	48.7 HP *(36.3 kW)*	46.2 HP *(34.5 kW)*	49.6 HP *(37.0 kW)*

HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	28.5	*725*
B	20.5	*520*
C	21.7	*551*
D	18.9	*480*
E	7.3	*185*
F	14.4	*365*
G	37.4	*950*
H	3.5	*90*
I	20.7	*525*
J	23.0	*585*
K	29.3	*745*
L	50.2	*1276*
*L'	54.3	*1378*
M	27.0	*687*
N	39.4	*1000*
O	9.0	*230*
P	50.6	*1284*
Q	40.0	*1015*
R	44.3	*1125*

*L' to Quick Attach ends



JOHN DEERE 7215R DIESEL

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