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2014

Test 2082: John Deere 7210R

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NEBRASKA OECD TRACTOR TEST 2082-SUMMARY 931

JOHN DEERE 7210R COMMANDQUAD DIESEL

20 SPEED

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)	
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1067 rpm)						
177.75 (132.55)	2099	10.31 (39.01)	0.406 (0.247)	17.25 (3.40)	0.25 (0.93)	Fuel used during active exhaust regeneration-1.50 gal (5.68 l) (see note 1, p.2)
Standard Power Take-off Speed (1000 rpm)						
199.85 (149.03)	1967	11.15 (42.21)	0.391 (0.238)	17.92 (3.53)	0.23 (0.89)	
Maximum Power (1 hour)						
206.11 (153.69)	1900	11.31 (42.83)	0.384 (0.234)	18.22 (3.59)	0.26 (0.99)	

VARYING POWER AND FUEL CONSUMPTION

177.75 (132.55)	2099	10.31 (39.01)	0.406 (0.247)	17.25 (3.40)	0.25 (0.93)	Air temperature
155.28 (115.79)	2154	9.33 (35.34)	0.421 (0.256)	16.63 (3.28)	0.22 (0.84)	74°F (23°C)
116.72 (87.04)	2161	7.51 (28.42)	0.450 (0.274)	15.54 (3.06)	0.19 (0.70)	Relative humidity
78.17 (58.29)	2172	5.97 (22.58)	0.534 (0.325)	13.10 (2.58)	0.09 (0.35)	18%
39.37 (29.36)	2182	4.22 (15.98)	0.751 (0.457)	9.33 (1.84)	0.07 (0.28)	Barometer
1.14 (0.85)	2193	2.62 (9.90)	16.061 (9.770)	0.44 (0.09)	0.08 (0.30)	28.68" Hg (97.12 kPa)

Maximum torque - 665 lb.-ft. (902 Nm) at 1599 rpm

Maximum torque rise - 49.5%

Torque rise at 1680 engine rpm - 43%

Power increase at 1900 engine rpm - 15.9%

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 (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—7th (B3) Gear									
166.67 (124.29)	12164 (54.11)	5.14 (8.27)	2099	2.8	0.434 (0.264)	16.14 (3.18)	218 (103)	59 (15)	28.60 (96.85)
75% of Pull at Maximum Power—7th (B3) Gear									
129.60 (96.64)	9140 (40.66)	5.32 (8.56)	2157	2.0	0.463 (0.282)	15.11 (2.98)	218 (103)	65 (18)	28.55 (96.68)
50% of Pull at Maximum Power—7th (B3) Gear									
87.56 (65.29)	6101 (27.14)	5.38 (8.66)	2168	1.3	0.534 (0.325)	13.12 (2.58)	217 (103)	66 (19)	28.56 (96.72)
75% of Pull at Reduced Engine Speed—5.5 mph (8.8 km/h)-Auto Mode									
129.36 (96.46)	9081 (40.39)	5.34 (8.59)	1361	2.0	0.423 (0.258)	16.54 (3.26)	217 (103)	64 (18)	28.55 (96.68)
50% of Pull at Reduced Engine Speed—5.5 mph (8.8 km/h)-Auto Mode									
87.66 (65.37)	6112 (27.19)	5.38 (8.66)	1361	1.3	0.454 (0.276)	15.41 (3.04)	215 (102)	66 (19)	28.55 (96.68)

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

Dates of tests: April 2 -14, 2014

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

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8410 **Fuel weight** 7.002 lbs/gal (0.839 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil SAE 10W-30 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:** 35.5 hours

ENGINE: Make John Deere **Type** six cylinder vertical with two turbochargers, air to air aftercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No. *** PE6068U000682* **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 **Exhaust** regenerative particulate filter integrated within a vertical muffler **Cooling medium temperature control** 2 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 67.9 - 73.6 lb/h (30.8 - 33.4 kg/h) **High idle:** 2150 - 2250 rpm **Turbo boost:** nominal 24.7 - 26.8 psi (170 - 185 kPa) as measured 25.7 psi (177 kPa)

CHASSIS: Type front wheel assist with duals **Serial No. *** 1RW7210RCEC081139* **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 26.12 (42.00) twentieth 26.12 (42.00) 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)	Temp. °F (°C) cool- ing med	Barom. inch Hg (kPa)		
3rd (A3) Gear									
127.93 (95.39)	21760 (96.79)	2.21 (3.55)	2155	14.1	0.504 (0.307)	13.88 (2.74)	219 (104)	43 (6)	28.78 (97.46)
4th (A4) Gear									
154.46 (115.18)	20936 (93.13)	2.77 (4.46)	2101	9.6	0.470 (0.286)	14.91 (2.94)	219 (104)	45 (7)	28.79 (97.49)
5th (B1) Gear									
162.41 (121.11)	17498 (77.83)	3.48 (5.60)	2100	5.1	0.447 (0.272)	15.68 (3.09)	218 (103)	58 (14)	28.60 (96.85)
6th (B2) Gear									
164.37 (122.57)	14450 (64.28)	4.27 (6.86)	2099	3.4	0.441 (0.268)	15.87 (3.13)	218 (103)	56 (13)	28.60 (96.85)
7th (B3) Gear									
166.67 (124.29)	12164 (54.11)	5.14 (8.27)	2099	2.8	0.434 (0.264)	16.14 (3.18)	218 (103)	59 (15)	28.60 (96.85)
8th (C1) Gear									
164.93 (122.98)	10862 (48.31)	5.70 (9.17)	2099	2.4	0.437 (0.266)	16.01 (3.15)	218 (103)	49 (9)	28.59 (96.82)
9th (B4) Gear									
165.20 (123.19)	9780 (43.50)	6.33 (10.19)	2099	2.1	0.437 (0.266)	16.01 (3.15)	218 (103)	49 (9)	28.60 (96.85)
10th (C2) Gear									
164.23 (122.47)	8944 (39.78)	6.89 (11.08)	2100	1.9	0.440 (0.268)	15.92 (3.14)	218 (103)	49 (9)	28.59 (96.82)
11th (C3) Gear									
163.27 (121.75)	7400 (32.92)	8.27 (13.31)	2100	1.6	0.442 (0.269)	15.85 (3.12)	218 (103)	54 (12)	28.60 (96.85)

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), 18.64 (30.00), 18.64 (30.00), 18.64 (30.00), 18.64 (30.00), 18.64 (30.00) electronically limited **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 1763 engine rpm or 1000 rpm at 1967 or 1756 engine rpm **Unladen tractor mass** 21920 lb (9943 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The manufacturer declares that the average time between active regenerations is 50 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 regeneration.

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 126°F (52°C). This tractor did not meet the manufacturer's remote hydraulic flow claim of 59 GPM (223.3 l/min) with the 85 cc pump. 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. **2082**, Nebraska Summary 931, July 11, 2014.

Roger M. Hoy
 Director

M.F. Kocher
 S. Pitla
 P.J. Jasa
 Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB

	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 6th (B2) gear	67.8	67.7
Transport speed - no load - 19th (E3) gear		70.0
Bystander in 19th (E3) gear		84.8

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

Four 480/80R46;***;12(85)
 Two 420/90R30;***;13(90)
 19.0 in (485 mm)
 14590 lb (6618 kg)
 7505 lb (3404 kg)
 22095 lb (10022 kg)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED - 1900 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)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd (A3) Gear									
128.60 (95.89)	21791 (96.93)	2.22 (3.56)	2154	13.8	0.501 (0.305)	13.97 (2.75)	218 (103)	43 (6)	28.79 (97.49)
4th (A4) Gear									
155.29 (115.80)	21052 (93.64)	2.77 (4.46)	2098	9.5	0.468 (0.285)	14.97 (2.95)	218 (103)	46 (8)	28.79 (97.49)
5th (B1) Gear									
174.29 (129.97)	19826 (88.19)	3.30 (5.31)	2029	7.0	0.439 (0.267)	15.94 (3.14)	218 (103)	47 (8)	28.80 (97.53)
6th (B2) Gear									
184.87 (137.85)	18356 (81.65)	3.78 (6.08)	1910	6.0	0.429 (0.261)	16.34 (3.22)	218 (103)	61 (16)	28.59 (96.82)
7th (B3) Gear									
190.25 (141.87)	15518 (69.03)	4.60 (7.40)	1900	4.0	0.416 (0.253)	16.82 (3.31)	219 (104)	60 (16)	28.59 (96.82)
8th (C1) Gear									
189.73 (141.48)	13922 (61.93)	5.11 (8.22)	1900	3.2	0.418 (0.254)	16.77 (3.30)	218 (103)	54 (12)	28.60 (96.85)
9th (B4) Gear									
191.29 (142.64)	12592 (56.01)	5.70 (9.17)	1900	2.8	0.415 (0.252)	16.89 (3.33)	218 (103)	52 (11)	28.59 (96.82)
10th (C2) Gear									
189.27 (141.13)	11450 (50.93)	6.20 (9.98)	1900	2.4	0.419 (0.255)	16.73 (3.30)	218 (103)	49 (10)	28.59 (96.82)
11th (C3) Gear									
190.08 (141.74)	9566 (42.55)	7.45 (11.99)	1900	2.0	0.416 (0.253)	16.83 (3.31)	219 (104)	54 (12)	28.60 (96.85)
12th (C4) Gear									
187.18 (139.58)	7652 (34.04)	9.17 (14.76)	1900	1.6	0.423 (0.258)	16.54 (3.26)	218 (103)	55 (13)	28.60 (96.85)

Shiftable PTO Performance

Economy mode

1002 PTO rpm @ 1760 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)
200.33 (149.39)	1760	10.63 (40.24)	0.372 (0.226)	18.84 (3.71)	0.24 (0.91)
150.24 (112.03)	1760	8.21 (31.08)	0.383 (0.233)	18.30 (3.61)	0.17 (0.64)
99.16 (73.24)	1760	5.87 (22.22)	0.414 (0.252)	16.90 (3.33)	0.11 (0.42)
50.02 (37.30)	1760	3.67 (13.89)	0.514 (0.313)	13.63 (2.69)	0.05 (0.19)
1.10 (0.82)	1760	1.80 (6.81)	11.479 (6.983)	0.61 (0.12)	0.05 (0.19)

Normal mode

1001 PTO rpm @ 1970 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)
200.26 (149.33)	1969	11.07 (41.90)	0.387 (0.235)	18.10 (3.57)	0.27 (1.02)
150.35 (112.12)	1970	8.69 (32.90)	0.405 (0.246)	17.31 (3.41)	0.18 (0.68)
99.26 (74.02)	1970	6.35 (24.03)	0.448 (0.273)	15.64 (3.08)	0.12 (0.45)
50.11 (37.37)	1970	4.16 (15.75)	0.581 (0.353)	12.05 (2.37)	0.08 (0.30)
1.08 (0.81)	1970	2.13 (8.06)	13.854 (8.427)	0.51 (0.10)	0.07 (0.26)

HYDRAULIC PERFORMANCE

CATEGORY: III

Quick Attach: Yes

OECD Static test

Maximum force exerted through whole range:

lift cylinders
 12408 lbs (55.2 kN) (2 x 90 mm)
 15324 lbs (68.2 kN) (2 x 100 mm)

i) Sustained pressure at compensator cutoff:

45 cc pump 63 cc pump 85 cc pump
 2985 psi (206 bar) 2955 psi (204 bar) 2931 psi (202 bar)

three outlet sets combined

ii) Pump delivery rate at minimum pressure and rated engine speed:

34.5 GPM (130.6 l/min) 44.4 GPM (168.1 l/min) 58.3 GPM (220.7 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

33.5 GPM (126.9 l/min) 43.3 GPM (164.0 l/min) 57.5 GPM (217.6 l/min)

Delivery pressure:

2845 psi (196 bar) 2761 psi (190 bar) 2571 psi (177 bar)

Power:

55.6 HP (41.5 kW) 69.8 HP (52.0 kW) 86.2 HP (64.3 kW)

single outlet set

ii) Pump delivery rate at minimum pressure and rated engine speed:

34.1 GPM (129.1 l/min) 36.1 GPM (136.5 l/min) 36.4 GPM (137.9 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

33.3 GPM (126.1 l/min) 35.5 GPM (134.5 l/min) 35.4 GPM (134.0 l/min)

Delivery pressure:

2423 psi (167 bar) 2298 psi (158 bar) 2244 psi (155 bar)

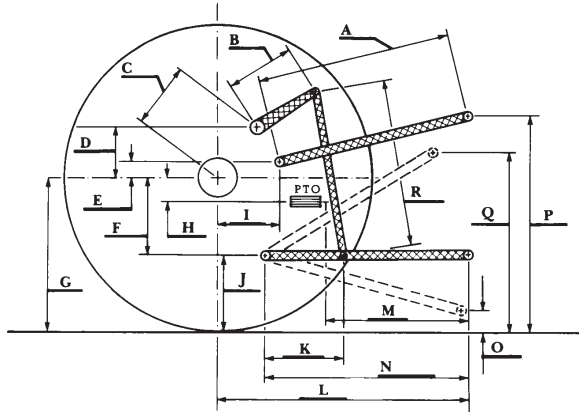
Power:

47.1 HP (35.1 kW) 47.6 HP (35.5 kW) 46.4 HP (34.6 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



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