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2012

Test 2033: John Deere 6170R

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NEBRASKA OECD TRACTOR TEST 2033—SUMMARY 827

JOHN DEERE 6170R AUTOQUAD-PLUS 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—1070 rpm)					
143.28 (106.85)	2097	8.87 (33.58)	0.436 (0.265)	16.15 (3.18)	Fuel used during active exhaust regeneration - 0.57 gal (2.16 l) (see note 1 p.2)
Standard Power Take-off Speed (1000 rpm)					
157.15 (117.19)	1960	9.25 (35.03)	0.415 (0.253)	16.98 (3.35)	
Maximum Power (1 hour)					
162.72 (121.34)	1697	9.05 (34.26)	0.392 (0.238)	17.98 (3.54)	

VARYING POWER AND FUEL CONSUMPTION

143.28 (106.85)	2097	8.87 (33.58)	0.436 (0.265)	16.15 (3.18)	Air temperature
125.50 (93.59)	2164	8.23 (31.16)	0.462 (0.281)	15.25 (3.00)	79°F (26°C)
94.80 (70.69)	2194	6.97 (26.39)	0.518 (0.315)	13.60 (2.68)	Relative humidity
63.90 (47.65)	2223	5.57 (21.07)	0.614 (0.373)	11.48 (2.26)	44%
31.85 (23.75)	2242	4.16 (15.74)	0.921 (0.560)	7.66 (1.51)	Barometer
1.45 (1.08)	2250	2.83 (10.72)	13.772 (8.377)	0.51 (0.10)	28.72" Hg (97.63 kPa)

Maximum torque - 533 lb.-ft. (723 Nm) at 1497 rpm

Maximum torque rise - 48.5%

Torque rise at 1680 engine rpm - 42%

Power increase at 1697 engine rpm - 13.6%

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									
135.88 (101.33)	9790 (43.55)	5.21 (8.38)	2100	2.2	0.467 (0.284)	15.11 (2.98)	187 (86)	76 (24)	28.66 (97.05)
75% of Pull at Maximum Power—7th (B3) Gear									
106.06 (79.09)	7310 (32.51)	5.44 (8.75)	2180	1.6	0.514 (0.312)	13.73 (2.70)	188 (87)	89 (32)	28.73 (97.29)
50% of Pull at Maximum Power—7th (B3) Gear									
72.05 (53.73)	4856 (21.60)	5.57 (8.96)	2214	0.9	0.608 (0.370)	11.59 (2.28)	186 (86)	92 (33)	28.72 (97.26)
75% of Pull at Reduced Engine Speed—10th (C2) Gear									
106.44 (79.37)	7324 (32.58)	5.45 (8.77)	1647	1.8	0.441 (0.268)	15.99 (3.15)	188 (87)	82 (28)	28.62 (96.92)
50% of Pull at Reduced Engine Speed—10th (C2) Gear									
72.58 (54.12)	4892 (21.76)	5.56 (8.95)	1669	1.1	0.496 (0.302)	14.22 (2.80)	186 (86)	86 (30)	28.61 (96.88)

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

Dates of tests: August 28 to September 10, 2012

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) 0.8467 Fuel weight 7.050 lbs/gal (0.845 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: 25.0 hours

ENGINE: Make John Deere Diesel Type six cylinder vertical with turbocharger and air to air intercooler Serial No. *PE6068R868581* Crankshaft lengthwise Rated engine speed 2100 Bore and stroke 4.19" x 5.00" (106.5 mm x 127.0 mm) Compression ratio 17.0 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 2 variable speed fans

ENGINE OPERATING PARAMETERS: Fuel rate: 61.1 - 66.1 lb/h (27.7 - 30.0 kg/h) High idle: 2225 - 2275 rpm Turbo boost: nominal 17.4 - 20.3 psi (120 - 140 kPa) as measured 18.5 psi (127 kPa)

CHASSIS: Type front wheel assist with duals Serial No. *1RW6170RCCA001471* Tread width rear 60.0" (1524 mm) to 124.6" (3164 mm) front 58.8" (1494 mm) to 86.8" (2206 mm) Wheelbase 110.2" (2800 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 2.50 (4.03) fourth 3.07 (4.94) fifth 3.68 (5.93) sixth 4.44 (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 13.07 (21.03) fifteenth 15.65 (25.18) sixteenth 19.17 (30.85) seventeenth 19.80 (31.86) eighteenth 23.84 (38.37) nineteenth 26.10 (42.00) twentieth 26.10 (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	Air dry bulb	Barom. inch Hg (kPa)
3rd(A3)Gear								
103.70 (77.33)	17393 (77.37)	2.24 (3.60)	2167	13.8	0.557 (0.339)	12.66 (2.49)	187 (86)	28.62 (96.92)
4th(A4)Gear								
125.81 (93.81)	16511 (73.44)	2.86 (4.59)	2100	7.2	0.507 (0.308)	13.91 (2.74)	188 (87)	28.61 (96.88)
5th(B1)Gear								
132.55 (98.84)	14077 (62.62)	3.53 (5.68)	2100	4.3	0.482 (0.293)	14.61 (2.88)	190 (88)	28.62 (96.92)
6th(B2)Gear								
133.59 (99.62)	11590 (51.55)	4.32 (6.95)	2100	2.8	0.475 (0.289)	14.83 (2.92)	189 (87)	28.66 (97.05)
7th(B3)Gear								
135.88 (101.33)	9790 (43.55)	5.21 (8.38)	2100	2.2	0.467 (0.284)	15.11 (2.98)	187 (86)	28.66 (97.05)
8th(C1)Gear								
135.98 (101.40)	8856 (39.39)	5.76 (9.27)	2099	2.0	0.462 (0.281)	15.26 (3.01)	188 (86)	28.65 (97.02)
9th(B4)Gear								
134.13 (100.02)	7844 (34.89)	6.41 (10.32)	2100	1.7	0.472 (0.287)	14.95 (2.94)	187 (86)	28.75 (97.36)
10th(C2)Gear								
134.07 (99.97)	7220 (32.11)	6.97 (11.21)	2101	1.6	0.470 (0.286)	15.00 (2.95)	187 (86)	28.74 (97.33)
11th(C3)Gear								
135.09 (100.74)	6059 (26.95)	8.36 (13.45)	2100	1.3	0.463 (0.282)	15.23 (3.00)	188 (87)	28.73 (97.29)

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), 17.57 (26.28), 20.00 (32.19), 20.66 (33.25), 24.87 (40.03), 26.10 (42.00), 26.10 (42.00) 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 1950 engine rpm or 1000 rpm at 1960 engine rpm **Unladen tractor mass** 18080 lb (8201 kg)

NOTE 1: The manufacturer declares that the average time between active regenerations is 25 hours, while operated in Auto Filter Cleaning Mode, at rated speed, full load, under steady state conditions.

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

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 119°F (48°C). The performance figures on this summary were taken from a test conducted under the OECD Code 2 test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2033**, Nebraska Summary 827, January 17, 2013.

Roger M. Hoy
Director

M.R. Riley
P.J. Jasa
J.D. Luck
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	74.8	74.8
Transport speed - no load - 19th (E3) gear		74.4
Bystander in 19th (E3) gear		80.1

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;***;12(85)
23.5 in (595 mm)
12275 lb (5568 kg)
5980 lb (2712 kg)
18255 lb (8280 kg)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED - 1700 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									
103.95 (77.52)	17391 (77.36)	2.24 (3.60)	2167	13.5	0.556 (0.338)	12.68 (2.50)	187 (86)	70 (21)	28.62 (96.92)
4th(A4)Gear									
126.71 (94.48)	17096 (76.05)	2.78 (4.47)	2075	8.7	0.507 (0.309)	13.89 (2.74)	188 (87)	74 (23)	28.61 (96.88)
5th(B1)Gear									
141.37 (105.42)	16400 (72.95)	3.23 (5.20)	1976	6.9	0.470 (0.286)	15.00 (2.96)	189 (87)	82 (28)	28.62 (96.92)
6th(B2)Gear									
147.91 (110.29)	15829 (70.41)	3.51 (5.64)	1766	6.2	0.444 (0.270)	15.87 (3.13)	191 (88)	83 (28)	28.67 (97.09)
7th(B3)Gear									
153.42 (114.41)	13874 (61.71)	4.15 (6.68)	1700	3.8	0.426 (0.259)	16.54 (3.26)	188 (87)	78 (26)	28.67 (97.09)
8th(C1)Gear									
155.06 (115.63)	12609 (56.09)	4.62 (7.43)	1700	3.1	0.418 (0.254)	16.85 (3.32)	189 (87)	75 (24)	28.65 (97.02)
9th(B4)Gear									
156.76 (116.89)	11429 (50.84)	5.15 (8.28)	1700	2.7	0.412 (0.250)	17.13 (3.38)	188 (86)	68 (20)	28.74 (97.33)
10th(C2)Gear									
155.30 (115.80)	10428 (46.38)	5.59 (8.99)	1699	2.4	0.420 (0.255)	16.80 (3.31)	188 (86)	73 (23)	28.74 (97.33)
11th(C3)Gear									
156.46 (116.67)	8723 (38.80)	6.73 (10.83)	1701	1.9	0.415 (0.253)	16.97 (3.34)	188 (87)	76 (24)	28.74 (97.33)
12th(C4)Gear									
154.15 (114.95)	6982 (31.06)	8.28 (13.33)	1701	1.5	0.421 (0.256)	16.74 (3.30)	190 (88)	78 (26)	28.73 (97.29)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE DISENGAGED
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									
134.87 (100.57)	9787 (43.53)	5.17 (8.31)	2101	3.0	0.471 (0.286)	14.98 (2.95)	188 (87)	77 (25)	28.66 (97.05)
75% of Pull at Maximum Power—7th(B3) Gear									
106.06 (79.09)	7353 (32.71)	5.41 (8.71)	2179	2.2	0.515 (0.313)	13.69 (2.70)	188 (87)	90 (32)	28.73 (97.29)
50% of Pull at Maximum Power—7th(B3)Gear									
72.65 (54.17)	4914 (21.86)	5.55 (8.92)	2214	1.4	0.605 (0.368)	11.65 (2.30)	186 (86)	91 (33)	28.72 (97.26)
75% of Pull at Reduced Engine Speed—10th(C2) Gear									
106.35 (79.30)	7355 (32.72)	5.42 (8.72)	1646	2.4	0.440 (0.268)	16.03 (3.16)	187 (86)	85 (29)	28.62 (96.92)
50% of Pull at Reduced Engine Speed—10th(C2) Gear									
72.13 (53.79)	4869 (21.66)	5.56 (8.95)	1672	1.6	0.499 (0.304)	14.13 (2.78)	186 (86)	85 (29)	28.61 (96.88)
MAXIMUM POWER IN SELECTED GEARS									
4th(A4) Gear									
110.63 (82.49)	15305 (68.08)	2.72 (4.37)	2155	14.3	0.560 (0.341)	12.58 (2.48)	188 (87)	76 (24)	28.61 (96.88)
5th(B1)Gear									
128.68 (95.95)	14064 (62.56)	3.44 (5.53)	2100	7.3	0.494 (0.301)	14.26 (2.81)	190 (88)	82 (28)	28.62 (96.92)
6th(B2)Gear									
132.42 (98.74)	11624 (51.71)	4.27 (6.87)	2100	4.1	0.479 (0.292)	14.71 (2.90)	189 (87)	81 (27)	28.66 (97.05)
7th(B3)Gear									
134.87 (100.57)	9787 (43.53)	5.17 (8.31)	2100	3.0	0.471 (0.286)	14.98 (2.95)	188 (87)	77 (25)	28.66 (97.05)
8th(C1)Gear									
135.10 (100.74)	8842 (39.33)	5.73 (9.32)	2100	2.7	0.469 (0.286)	15.02 (2.96)	188 (87)	74 (23)	28.65 (97.02)
9th(B4)Gear									
133.16 (99.30)	7822 (34.79)	6.39 (10.28)	2099	2.3	0.477 (0.290)	14.79 (2.91)	187 (86)	67 (19)	28.74 (97.33)
10th(C2)Gear									
133.65 (99.66)	7230 (32.16)	6.94 (11.16)	2100	2.2	0.475 (0.289)	14.83 (2.92)	188 (86)	72 (22)	28.74 (97.33)
11th(C3)Gear									
134.67 (100.42)	6061 (26.96)	8.34 (13.41)	2100	1.8	0.470 (0.286)	15.01 (2.96)	188 (87)	75 (24)	28.74 (97.33)

HYDRAULIC PERFORMANCE

CATEGORY: III

Quick Attach: No

Lift cylinders:

2 x 85 mm

Maximum force exerted through whole range: 11310 lbs (50.3 kN)

i) Sustained pressure at compensator cutoff: 2994 psi (206 bar)

three outlet sets combined

ii) Pump delivery rate at minimum pressure and rated engine speed: 43.0 GPM (162.7 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 42.2 GPM (159.7 l/min)

Delivery pressure: 2585 psi (178 bar)

Power: 63.6 HP (47.4 kW)

single outlet set

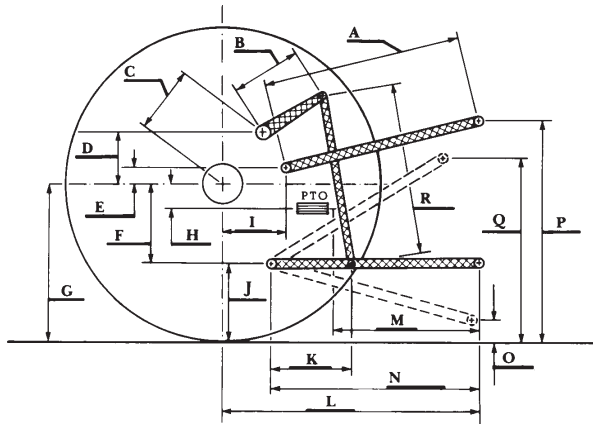
ii) Pump delivery rate at minimum pressure and rated engine speed: 33.2 GPM (125.6 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 31.1 GPM (117.8 l/min)

Delivery pressure: 2049 psi (141 bar)

Power: 37.2 HP (27.7 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	29.3	745
B	16.1	410
C	24.6	624
D	23.8	605
E	7.5	190
F	10.8	275
G	38.4	975
H	4.1	105
I	21.8	554
J	27.6	700
K	26.2	666
L	51.3	1303
M	26.9	683
N	43.6	1108
O	9.0	230
P	54.5	1385
Q	40.1	1018
R	43.9	1115



JOHN DEERE 6170R DIESEL

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