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2013

## Test 2060: John Deere 6150R

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# NEBRASKA OECD TRACTOR TEST 2060—SUMMARY 880

## JOHN DEERE 6150R 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1045 rpm)</b>					
124.32 (92.70)	2100	7.87 (29.80)	0.444 (0.270)	15.79 (3.11)	Fuel used during active exhaust regeneration - 0.82 gal (3.09 l) (see note 1 p.2)
<b>Standard Power Take-off Speed (1000 rpm)</b>					
135.50 (101.04)	2010	8.18 (30.95)	0.423 (0.257)	16.57 (3.26)	
<b>Maximum Power (1 hour)</b>					
144.68 (107.89)	1700	8.17 (30.93)	0.396 (0.241)	17.71 (3.49)	

#### VARYING POWER AND FUEL CONSUMPTION

124.32 (92.70)	2100	7.87 (29.80)	0.444 (0.270)	15.79 (3.11)	Air temperature
109.71 (81.81)	2162	7.31 (27.68)	0.467 (0.284)	15.00 (2.96)	73°F (23°C)
82.88 (61.81)	2193	6.23 (23.60)	0.527 (0.321)	13.29 (2.62)	Relative humidity
56.04 (41.79)	2219	5.07 (19.21)	0.635 (0.386)	11.04 (2.18)	25%
28.35 (21.14)	2233	3.89 (14.73)	0.961 (0.585)	7.29 (1.44)	Barometer
2.87 (2.14)	2244	3.04 (11.52)	7.438 (4.524)	0.94 (0.19)	28.69" Hg (97.16 kPa)

Maximum torque - 472 lb.-ft. (640 Nm) at 1549 rpm  
 Maximum torque rise - 51.9%  
 Torque rise at 1680 engine rpm - 45%  
 Power increase at 1700 engine rpm - 16.4%

#### 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)
<b>Maximum Power—7th (B3) Gear</b>									
116.90 (87.17)	8713 (38.76)	5.03 (8.10)	2100	2.7	0.471 (0.286)	14.88 (2.93)	189 (87)	47 (8)	28.71 (97.22)
<b>75% of Pull at Maximum Power—7th (B3) Gear</b>									
92.17 (68.73)	6539 (29.08)	5.29 (8.51)	2193	2.1	0.525 (0.319)	13.34 (2.63)	190 (88)	61 (16)	28.79 (97.49)
<b>50% of Pull at Maximum Power—7th (B3) Gear</b>									
62.71 (46.76)	4374 (19.45)	5.38 (8.66)	2213	1.4	0.618 (0.376)	11.35 (2.24)	188 (87)	62 (17)	28.78 (97.46)
<b>75% of Pull at Reduced Engine Speed—11th (C3) Gear</b>									
92.32 (68.84)	6537 (29.08)	5.30 (8.52)	1379	2.1	0.434 (0.264)	16.13 (3.18)	188 (86)	62 (17)	28.78 (97.46)
<b>50% of Pull at Reduced Engine Speed—11th (C3) Gear</b>									
62.73 (46.77)	4337 (19.29)	5.43 (8.73)	1402	1.3	0.470 (0.286)	14.90 (2.94)	187 (86)	62 (17)	28.78 (97.46)

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

**Dates of tests:** April 10 - 24, 2013

**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) 0.8416 Fuel weight 7.007 lbs/gal (0.840 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: 20.5 hours

**ENGINE:** Make John Deere Diesel Type six cylinder vertical with turbocharger and air to air intercooler Serial No. \*PE6068R021099\* Crankshaft lengthwise Rated engine speed 2100 Bore and stroke 4.19" x 5.00" (106.5 mm x 127.0 mm) Compression ratio 16.5 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: 52.3 - 56.7 lb/h (23.7 - 25.7 kg/h) High idle: 2225 - 2275 rpm Turbo boost: nominal 18.9 - 21.8 psi (130 - 150 kPa) as measured 19.6 psi (135 kPa)

**CHASSIS:** Type front wheel assist Serial No. \*1RW6150RHCA005778\* Tread width rear 62.9" (1597 mm) to 119.3" (3031 mm) front 67.5" (1714 mm) to 83.5" (2122 mm) Wheelbase 108.9" (2765 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 1.71 (2.75) second 2.06 (3.31) third 2.47 (3.97) fourth 3.02 (4.86) fifth 3.61 (5.81) sixth 4.34 (6.99) seventh 5.20 (8.37) eighth 5.75 (9.25) ninth 6.38 (10.26) tenth 6.92 (11.13) eleventh 8.28 (13.33) twelfth 10.15 (16.33) thirteenth 12.53 (20.16) fourteenth 15.08 (24.27) fifteenth 18.06 (29.07) sixteenth 19.82 (31.89) seventeenth 22.13 (35.61) eighteenth 23.86 (38.40) 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	Barom. inch Hg (kPa)		
4th(A4)Gear									
98.80 (73.68)	13894 (61.80)	2.67 (4.30)	2120	13.3	0.553 (0.336)	12.67 (2.50)	190 (88)	56 (14)	28.84 (97.66)
5th(B1)Gear									
113.22 (84.43)	12606 (56.07)	3.37 (5.42)	2100	6.2	0.484 (0.295)	14.47 (2.85)	190 (88)	58 (15)	28.83 (97.63)
6th(B2)Gear									
114.72 (85.54)	10326 (45.93)	4.17 (6.70)	2100	3.6	0.479 (0.292)	14.61 (2.88)	189 (87)	48 (9)	28.72 (97.26)
7th(B3)Gear									
116.90 (87.17)	8713 (38.76)	5.03 (8.10)	2100	2.7	0.471 (0.286)	14.88 (2.93)	189 (87)	47 (8)	28.71 (97.22)
8th(C1)Gear									
115.93 (86.45)	7797 (34.68)	5.58 (8.98)	2100	2.3	0.476 (0.290)	14.72 (2.90)	189 (87)	50 (10)	28.72 (97.26)
9th(B4)Gear									
113.43 (84.58)	6854 (30.49)	6.21 (9.99)	2100	2.1	0.487 (0.296)	14.40 (2.84)	190 (88)	48 (9)	28.71 (97.22)
10th(C2)Gear									
113.43 (84.58)	6301 (28.03)	6.75 (10.86)	2100	1.8	0.487 (0.296)	14.39 (2.83)	188 (87)	49 (9)	28.71 (97.22)
11th(C3)Gear									
114.43 (85.33)	5291 (23.54)	8.11 (13.05)	2100	1.5	0.483 (0.294)	14.51 (2.86)	189 (87)	49 (9)	28.72 (97.26)

reverse 1.78 (2.87), 2.15 (3.46), 2.57 (4.14), 3.15 (5.07), 3.77 (6.06), 4.54 (7.30), 5.43 (8.74), 6.00 (9.65), 6.65 (10.70), 7.22 (11.62), 8.64 (13.91), 10.59 (17.04), 13.07 (21.03), 15.74 (25.32), 18.85 (30.33), 20.68 (33.28), 23.09 (37.16), 24.90 (40.07), 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 1987 engine rpm or 1000 rpm at 2010 engine rpm **Unladen tractor mass** 14975 lb (6793 kg)

**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.

**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 131°F (55°C). 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. **2060**, Nebraska Summary 880, May 14, 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	71.1	70.9
Transport speed - no load - 19th (E3) gear		73.1
Bystander in 19th (E3) gear		78.2

**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 480/80R46;\*\*\*;12(85)  
 Two 420/90R30;\*\*\*;12(85)  
 23.0 in (585 mm)  
 9700 lb (4400 kg)  
 5450 lb (2472 kg)  
 15150 lb (6872 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)
4th(A4)Gear									
98.83 (73.69)	13909 (61.87)	2.67 (4.29)	2114	13.2	0.553 (0.337)	12.66 (2.49)	189 (87)	56 (13)	28.85 (97.70)
5th(B1)Gear									
116.30 (86.72)	13598 (60.49)	3.21 (5.17)	2038	7.9	0.484 (0.294)	14.48 (2.85)	190 (88)	61 (16)	28.81 (97.56)
6th(B2)Gear									
126.98 (94.69)	13058 (58.08)	3.65 (5.87)	1900	6.7	0.460 (0.280)	15.25 (3.00)	192 (89)	61 (16)	28.81 (97.56)
7th(B3)Gear									
133.86 (99.82)	12647 (56.26)	3.97 (6.39)	1700	5.2	0.428 (0.260)	16.38 (3.23)	195 (91)	48 (9)	28.74 (97.33)
8th(C1)Gear									
134.05 (99.96)	11324 (50.37)	4.44 (7.15)	1700	4.0	0.425 (0.259)	16.48 (3.25)	196 (91)	48 (9)	28.73 (97.29)
9th(B4)Gear									
134.26 (100.11)	10156 (45.18)	4.96 (7.98)	1700	3.4	0.425 (0.258)	16.51 (3.25)	196 (91)	49 (9)	28.72 (97.26)
10th(C2)Gear									
133.50 (99.55)	9264 (41.21)	5.40 (8.69)	1700	2.9	0.428 (0.260)	16.37 (3.22)	196 (91)	49 (9)	28.72 (97.26)
11th(C3)Gear									
134.64 (100.40)	7753 (34.49)	6.51 (10.48)	1700	2.3	0.424 (0.258)	16.54 (3.26)	197 (92)	48 (9)	28.73 (97.29)
12th(C4)Gear									
131.78 (99.26)	6163 (27.41)	8.02 (12.91)	1700	1.7	0.434 (0.264)	16.14 (3.18)	198 (92)	48 (9)	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 (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—7th (B3) Gear</b>									
115.38 (86.04)	8705 (38.72)	4.98 (8.01)	2100	3.9	0.478 (0.291)	14.66 (2.89)	189 (87)	47 (8)	28.71 (97.22)
<b>75% of Pull at Maximum Power—7th(B3) Gear</b>									
91.47 (68.21)	6535 (29.07)	5.25 (8.45)	2193	2.8	0.532 (0.324)	13.17 (2.59)	189 (87)	61 (16)	28.79 (97.49)
<b>50% of Pull at Maximum Power—7th (B3) Gear</b>									
62.08 (46.29)	4348 (19.34)	5.36 (8.62)	2213	1.8	0.627 (0.381)	11.18 (2.20)	188 (86)	62 (17)	28.78 (97.46)
<b>75% of Pull at Reduced Engine Speed—11th(C3) Gear</b>									
91.39 (68.15)	6517 (28.99)	5.26 (8.47)	1379	2.8	0.438 (0.266)	16.00 (3.15)	188 (86)	62 (17)	28.79 (97.49)
<b>50% of Pull at Reduced Engine Speed—11th(C3) Gear</b>									
62.43 (46.55)	4336 (19.29)	5.40 (8.69)	1402	1.8	0.472 (0.287)	14.86 (2.93)	187 (86)	62 (17)	28.77 (97.43)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
5th(B1) Gear									
100.98 (75.30)	11829 (52.62)	3.21 (5.16)	2173	13.9	0.542 (0.330)	12.93 (2.55)	190 (88)	59 (15)	28.82 (97.60)
6th(B2) Gear									
110.53 (82.42)	10216 (45.44)	4.06 (6.53)	2100	6.1	0.497 (0.302)	14.11 (2.78)	189 (87)	59 (15)	28.82 (97.60)
7th(B3) Gear									
115.38 (86.04)	8705 (38.72)	4.98 (8.01)	2100	3.9	0.478 (0.291)	14.66 (2.89)	189 (87)	47 (8)	28.71 (97.22)
8th(C1) Gear									
114.69 (85.52)	7779 (34.60)	5.53 (8.90)	2100	3.2	0.482 (0.293)	14.55 (2.87)	189 (87)	49 (9)	28.72 (97.26)
9th(B4) Gear									
112.51 (83.90)	6842 (30.43)	6.17 (9.93)	2100	2.9	0.490 (0.298)	14.29 (2.81)	190 (88)	49 (9)	28.71 (97.22)
10th(C2) Gear									
112.75 (84.07)	6299 (28.02)	6.71 (10.80)	2100	2.4	0.489 (0.298)	14.32 (2.82)	189 (87)	49 (9)	28.72 (97.26)
11th(C3) Gear									
113.15 (84.38)	5256 (23.38)	8.08 (13.00)	2100	2.0	0.487 (0.296)	14.39 (2.83)	189 (87)	48 (9)	28.72 (97.26)

## HYDRAULIC PERFORMANCE

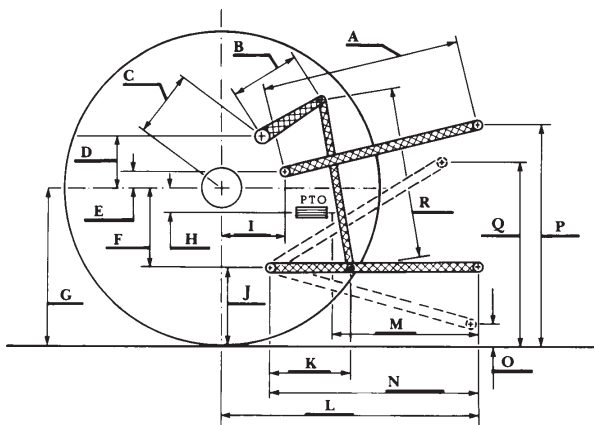
CATEGORY: III

Quick Attach: No

Lift cylinders

Maximum force exerted through whole range: 9244 lbs (41.1 kN) 2 x 90 mm

- i) Maximum observed pressure: 2935 psi (202 bar)  
**three outlet sets combined**
- ii) Pump delivery rate at minimum pressure and rated engine speed: 30.8 GPM (116.5 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 29.6 GPM (112.2 l/min)  
Delivery pressure: 2745 psi (189 bar)  
Power: 47.5 HP (35.4 kW)  
**single outlet set**
- ii) Pump delivery rate at minimum pressure and rated engine speed: 30.7 GPM (116.1 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 30.5 GPM (115.5 l/min)  
Delivery pressure: 2043 psi (141 bar)  
Power: 36.4 HP (27.1 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	29.4	748
B	16.1	410
C	23.8	604
D	22.6	575
E	7.9	200
F	9.8	250
G	36.6	930
H	3.1	80
I	19.1	485
J	26.8	680
K	24.8	629
L	47.8	1213
M	24.7	628
N	41.4	1053
O	9.0	230
P	53.7	1365
Q	39.0	990
R	39.6	1005



**JOHN DEERE 6150R DIESEL**

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