

# NEBRASKA OECD TRACTOR TEST 2059—SUMMARY 879

## JOHN DEERE 6140R 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>					
114.09 (85.07)	2100	7.37 (27.91)	0.453 (0.275)	15.47 (3.05)	Fuel used during active exhaust regeneration - 0.81 gal (3.05 l) (see note 1 p.2)
<b>Standard Power Take-off Speed (1000 rpm)</b>					
126.30 (94.18)	2010	7.71 (29.20)	0.428 (0.260)	16.37 (3.23)	
<b>Maximum Power (1 hour)</b>					
134.42 (100.24)	1700	7.62 (28.86)	0.397 (0.242)	17.63 (3.47)	

#### VARYING POWER AND FUEL CONSUMPTION

114.09 (85.07)	2100	7.37 (27.91)	0.453 (0.275)	15.47 (3.05)	Air temperature
100.57 (74.99)	2165	6.85 (25.94)	0.477 (0.290)	14.68 (2.89)	74°F (23°C)
75.97 (56.65)	2194	5.84 (22.11)	0.539 (0.328)	13.01 (2.56)	Relative humidity
51.61 (38.48)	2220	4.75 (17.98)	0.645 (0.392)	10.87 (2.14)	57%
26.13 (19.49)	2232	3.74 (14.17)	1.004 (0.611)	6.98 (1.38)	Barometer
3.34 (2.49)	2244	3.01 (11.40)	6.314 (3.841)	1.11 (0.22)	28.43" Hg (96.27 kPa)

Maximum torque - 436 lb.-ft. (591 Nm) at 1499 rpm  
 Maximum torque rise - 52.7%  
 Torque rise at 1680 engine rpm - 46%  
 Power increase at 1700 engine rpm - 17.8%

#### 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>									
108.79 (81.12)	8485 (37.74)	4.81 (7.74)	2100	2.8	0.475 (0.289)	14.76 (2.91)	189 (87)	42 (5)	28.68 (97.12)
<b>75% of Pull at Maximum Power—7th (B3) Gear</b>									
85.81 (63.99)	6364 (28.31)	5.06 (8.14)	2193	2.1	0.528 (0.321)	13.27 (2.61)	189 (87)	50 (10)	28.87 (97.76)
<b>50% of Pull at Maximum Power—7th (B3) Gear</b>									
58.16 (43.37)	4243 (18.87)	5.14 (8.27)	2213	1.4	0.626 (0.381)	11.20 (2.21)	188 (86)	51 (10)	28.86 (97.73)
<b>75% of Pull at Reduced Engine Speed—11th (C3) Gear</b>									
85.77 (63.95)	6370 (28.34)	5.05 (8.13)	1375	2.0	0.431 (0.262)	16.24 (3.20)	189 (87)	50 (10)	28.87 (97.76)
<b>50% of Pull at Reduced Engine Speed—11th (C3) Gear</b>									
58.65 (43.74)	4257 (18.94)	5.17 (8.32)	1397	1.4	0.468 (0.285)	14.96 (2.95)	187 (86)	51 (11)	28.86 (97.73)

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

**Dates of tests:** April 8 - 18, 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: 21.0 hours

**ENGINE: Make** John Deere Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** \*PE6068R019878\* **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:** 49.7 - 53.9 lb/h (22.5 - 24.4 kg/h) **High idle:** 2225 - 2275 rpm **Turbo boost:** nominal 17.4 - 20.3 psi (120 - 140 kPa) as measured 18.3 psi (126 kPa)

**CHASSIS: Type** front wheel assist **Serial No.** \*1RW6140RVCA005432\* **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 1.60 (2.57) second 1.93 (3.10) third 2.31 (3.71) fourth 2.83 (4.55) fifth 3.37 (5.43) sixth 4.06 (6.54) seventh 4.87 (7.83) eighth 5.38 (8.65) ninth 5.96 (9.60) tenth 6.47 (10.41) eleventh 7.75 (12.47) twelfth 9.49 (15.28) thirteenth 11.72 (18.86) fourteenth 14.11 (22.70) fifteenth 16.90 (27.19) sixteenth 18.54 (29.84) seventeenth 20.70 (33.31) eighteenth 22.33 (35.93) nineteenth 26.10 (42.00) twentieth 26.10 (42.00) electronically limited

## DRAWBAR PERFORMANCE

### UNBALLASTED - FRONT DRIVE ENGAGED-2100 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)	Temp. °F (°C) cool- ing med	Barom. inch Hg (kPa)		
3rd(A3)Gear									
80.60 (60.10)	14262 (63.44)	2.12 (3.41)	2187	13.3	0.592 (0.360)	11.83 (2.33)	190 (88)	46 (8)	28.93 (97.97)
4th(A4)Gear									
95.83 (71.46)	13651 (60.72)	2.64 (4.24)	2101	10.0	0.536 (0.326)	13.07 (2.57)	191 (88)	47 (8)	28.92 (97.93)
5th(B1)Gear									
105.32 (78.53)	12192 (54.23)	3.24 (5.21)	2100	5.6	0.491 (0.298)	14.28 (2.81)	190 (88)	48 (9)	28.90 (97.87)
6th(B2)Gear									
106.29 (79.26)	10028 (44.61)	3.98 (6.40)	2100	3.8	0.485 (0.295)	14.44 (2.84)	190 (88)	49 (9)	28.89 (97.83)
7th(B3)Gear									
108.79 (81.12)	8485 (37.74)	4.81 (7.74)	2100	2.8	0.475 (0.289)	14.76 (2.91)	189 (87)	42 (5)	28.68 (97.12)
8th(C1)Gear									
107.92 (80.47)	7592 (33.77)	5.33 (8.58)	2100	2.3	0.479 (0.291)	14.63 (2.88)	189 (87)	45 (7)	28.66 (97.05)
9th(B4)Gear									
106.67 (79.54)	6745 (30.00)	5.93 (9.54)	2100	2.1	0.486 (0.295)	14.43 (2.84)	188 (87)	45 (7)	28.67 (97.09)
10th(C2)Gear									
106.83 (79.66)	6212 (27.63)	6.45 (10.38)	2100	1.8	0.485 (0.295)	14.46 (2.85)	190 (88)	48 (9)	28.66 (97.05)
11th(C3)Gear									
107.09 (79.85)	5179 (23.04)	7.76 (12.48)	2100	1.5	0.485 (0.295)	14.45 (2.85)	189 (87)	47 (9)	28.66 (97.05)
12th(C4)Gear									
107.99 (80.52)	4254 (18.92)	9.53 (15.33)	2100	1.2	0.496 (0.301)	14.14 (2.79)	191 (88)	48 (9)	28.66 (97.05)

reverse 1.67 (2.69), 2.01 (3.23), 2.40 (3.87), 2.95 (4.74), 3.52 (5.67), 4.24 (6.82), 5.08 (8.17), 5.60 (9.02), 6.22 (10.01), 6.75 (10.87), 8.09 (13.02), 9.90 (15.94), 12.22 (19.67), 14.72 (23.69), 17.63 (28.37), 19.34 (31.13), 21.60 (34.76), 23.30 (37.49), 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** 14585 lb (6616 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.

**NOTE 2:** This tractor model is equipped with the Intelligent Power Management (IPM) system which automatically increases the engine power when the travel speed exceeds 9.3 mph (15 km/h).

**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 125°F (52°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. **2059**, Nebraska Summary 879, 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 7th (B3) gear	70.8	70.8
Transport speed - no load - 19th (E3) gear		74.5
Bystander in 19th (E3) gear		78.7

### 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 480/80R42;\*\*\*;12(85)  
Two 420/85R28;\*\*\*;12(85)  
21.5 in (545 mm)  
9450 lb (4286 kg)  
5310 lb (2409 kg)  
14760 lb (6695 kg)

**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE ENGAGED - 1700 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)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd(A3)Gear									
80.63 (60.12)	14261 (63.44)	2.12 (3.41)	2187	13.3	0.594 (0.361)	11.79 (2.32)	190 (88)	46 (8)	28.92 (97.93)
4th(A4) Gear									
95.84 (71.46)	13663 (60.78)	2.63 (4.23)	2100	9.7	0.535 (0.326)	13.09 (2.58)	192 (89)	46 (8)	28.92 (97.93)
5th(B1)Gear									
109.80 (81.88)	13298 (59.15)	3.10 (4.99)	2046	7.4	0.481 (0.292)	14.58 (2.87)	191 (88)	48 (9)	28.90 (97.87)
6th(B2)Gear									
119.64 (89.22)	13045 (58.03)	3.44 (5.54)	1876	6.8	0.454 (0.276)	15.42 (3.04)	193 (89)	49 (9)	28.89 (97.83)
7th(B3)Gear									
123.32 (91.96)	12217 (54.34)	3.79 (6.09)	1700	5.5	0.431 (0.262)	16.24 (3.20)	192 (89)	44 (7)	28.68 (97.12)
8th(C1)Gear									
123.81 (92.32)	10956 (48.73)	4.24 (6.82)	1700	4.1	0.430 (0.261)	16.31 (3.21)	194 (90)	47 (8)	28.65 (97.02)
9th(B4)Gear									
124.16 (92.59)	9828 (43.71)	4.74 (7.63)	1700	3.4	0.429 (0.261)	16.32 (3.21)	193 (89)	45 (7)	28.66 (97.05)
10th(C2)Gear									
124.21 (92.62)	9019 (40.12)	5.16 (8.30)	1700	2.9	0.429 (0.261)	16.35 (3.22)	195 (91)	47 (9)	28.66 (97.05)
11th(C3)Gear									
124.71 (93.00)	7509 (33.40)	6.23 (10.03)	1700	2.3	0.426 (0.259)	16.43 (3.24)	195 (90)	48 (9)	28.66 (97.05)
12th(C4)Gear									
122.92 (91.66)	6013 (26.75)	7.67 (12.34)	1699	1.7	0.435 (0.264)	16.12 (3.18)	195 (90)	48 (9)	28.66 (97.05)
13th (D1)Gear									
123.06 (91.77)	4867 (21.65)	9.48 (15.26)	1697	1.3	0.437 (0.266)	16.03 (3.16)	196 (91)	48 (9)	28.66 (97.05)

**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE DISENGAGED**  
**FUEL CONSUMPTION CHARACTERISTICS**

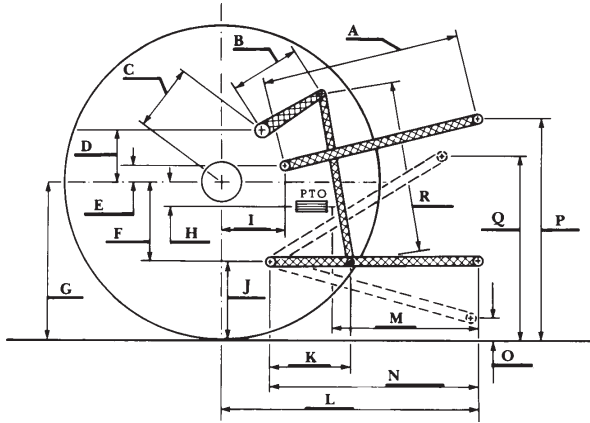
Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—7th (B3) Gear</b>									
107.37 (80.06)	8539 (37.98)	4.72 (7.59)	2100	4.1	0.481 (0.293)	14.57 (2.87)	189 (87)	43 (6)	28.68 (97.12)
<b>75% of Pull at Maximum Power—7th(B3) Gear</b>									
84.87 (63.29)	6382 (28.39)	4.99 (8.03)	2193	2.9	0.534 (0.325)	13.12 (2.58)	189 (87)	50 (10)	28.88 (97.80)
<b>50% of Pull at Maximum Power—7th (B3) Gear</b>									
57.91 (43.18)	4269 (18.99)	5.09 (8.19)	2214	1.8	0.631 (0.384)	11.11 (2.19)	188 (87)	50 (10)	28.87 (97.77)
<b>75% of Pull at Reduced Engine Speed—11th(C3) Gear</b>									
84.98 (63.37)	6392 (28.43)	4.99 (8.02)	1376	2.8	0.434 (0.264)	16.16 (3.18)	189 (87)	51 (10)	28.87 (97.77)
<b>50% of Pull at Reduced Engine Speed—11th(C3) Gear</b>									
58.04 (43.28)	4254 (18.92)	5.12 (8.23)	1398	1.8	0.474 (0.288)	14.79 (2.91)	187 (86)	51 (11)	28.85 (97.70)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
5th(B1)Gear									
90.73 (67.66)	11189 (49.77)	3.05 (4.90)	2180	14.1	0.559 (0.340)	12.53 (2.47)	190 (88)	49 (9)	28.90 (97.87)
6th(B2)Gear									
103.06 (76.85)	10117 (45.00)	3.82 (6.15)	2100	7.0	0.500 (0.304)	14.00 (2.76)	190 (88)	48 (9)	28.90 (97.87)
7th(B3)Gear									
107.37 (80.06)	8539 (37.98)	4.72 (7.59)	2100	4.1	0.481 (0.293)	14.57 (2.87)	189 (87)	43 (6)	28.68 (97.12)
8th(C1)Gear									
106.71 (79.57)	7622 (33.90)	5.25 (8.45)	2100	3.4	0.486 (0.296)	14.42 (2.84)	189 (87)	46 (8)	28.66 (97.05)
9th(B4)Gear									
105.94 (79.00)	6787 (30.19)	5.85 (9.41)	2100	2.8	0.489 (0.298)	14.32 (2.82)	189 (87)	46 (8)	28.67 (97.09)
10th(C2)Gear									
106.05 (79.08)	6241 (27.76)	6.37 (10.25)	2100	2.5	0.488 (0.297)	14.37 (2.83)	190 (88)	48 (9)	28.66 (97.05)
11th(C3)Gear									
106.21 (79.20)	5190 (23.09)	7.67 (12.34)	2100	2.0	0.487 (0.296)	14.40 (2.84)	189 (87)	47 (9)	28.66 (97.05)
12th(C4)Gear									
108.06 (80.58)	4295 (19.10)	9.44 (15.18)	2100	1.6	0.495 (0.301)	14.15 (2.79)	190 (88)	48 (9)	28.65 (97.02)

## HYDRAULIC PERFORMANCE

CATEGORY: II  
Quick Attach: No

Maximum force exerted through whole range: Lift cylinders  
8216 lbs (36.5 kN) 2 x 85 mm

- i) Maximum observed pressure: 2951 psi (203 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: 29.4 GPM (111.4 l/min)  
Delivery pressure: 2799 psi (193 bar)  
Power: 48.1 HP (35.8 kW)  
**single outlet set**
- ii) Pump delivery rate at minimum pressure and rated engine speed: 30.9 GPM (116.8 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 29.9 GPM (113.4 l/min)  
Delivery pressure: 2086 psi (144 bar)  
Power: 36.4 HP (27.2 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 6140R DIESEL**

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