

# NEBRASKA OECD TRACTOR TEST 1999—SUMMARY 782

## JOHN DEERE 8335RT DIESEL

### 16 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—1048 rpm)</b>					
290.65 (216.74)	2099	16.04 (60.72)	0.386 (0.235)	18.12 (3.57)	
<b>Standard Power Take-off Speed(1000 rpm)</b>					
315.36 (235.16)	2003	17.06 (64.59)	0.379 (0.230)	18.48 (3.64)	
<b>Maximum Power (1 hour)</b>					
323.28 (241.07)	1800	17.34 (65.62)	0.376 (0.228)	18.65 (3.67)	

#### VARYING POWER AND FUEL CONSUMPTION

290.65 (216.74)	2100	16.04 (60.72)	0.386 (0.235)	18.12 (3.57)	Air temperature
254.25 (189.59)	2154	14.39 (54.45)	0.396 (0.241)	17.67 (3.48)	73°F (23°C)
191.18 (142.57)	2164	11.57 (43.81)	0.424 (0.258)	16.52 (3.25)	Relative humidity
128.23 (95.62)	2175	8.78 (33.24)	0.480 (0.292)	14.60 (2.88)	22%
64.13 (47.82)	2187	6.04 (22.85)	0.659 (0.401)	10.62 (2.09)	Barometer
4.18 (3.12)	2195	4.14 (15.65)	6.932 (4.217)	1.01 (0.20)	29.17" Hg (98.78 kPa)

Maximum torque - 1035 lb.-ft. (1403 Nm) at 1601 rpm  
 Maximum torque rise - 42.3%  
 Torque rise at 1700 engine rpm - 36%  
 Power increase at 1800 rpm - 11.2%

#### DRAWBAR PERFORMANCE (Unballasted)

##### 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 bulb	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—8th Gear</b>									
250.61 (186.88)	20835 (92.68)	4.51 (7.26)	2101	2.7	0.447 (0.272)	15.67 (3.09)	209 (98)	68 (20)	28.86 (97.73)
<b>75% of Pull at Maximum Power—8th Gear</b>									
195.56 (145.83)	15620 (69.48)	4.70 (7.56)	2158	1.5	0.483 (0.294)	14.49 (2.85)	204 (96)	77 (25)	28.83 (97.63)
<b>50% of Pull at Maximum Power—8th Gear</b>									
132.17 (98.56)	10454 (46.50)	4.74 (7.63)	2169	0.8	0.553 (0.337)	12.65 (2.49)	196 (91)	77 (25)	28.83 (97.63)
<b>75% of Pull at Reduced Engine Speed—11th Gear</b>									
195.30 (145.64)	15626 (69.51)	4.69 (7.55)	1394	1.5	0.425 (0.259)	16.48 (3.25)	211 (99)	79 (26)	28.81 (97.56)
<b>50% of Pull at Reduced Engine Speed—11th Gear</b>									
132.08 (98.49)	10392 (46.23)	4.77 (7.67)	1406	0.8	0.451 (0.274)	15.53 (3.06)	202 (94)	79 (26)	28.81 (97.56)

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

**Dates of tests:** September 15 - 27, 2011

**Manufacturer:** John Deere Tractor Works, 3500 East Donald St., 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) 0.8411 Fuel weight 7.003 lbs/gal (0.839 kg/l) Oil SAE 15W-40 API service classification CI-4 Transmission and hydraulic lubricant John Deere Hy-Gard fluid Total time engine was operated: 23.5 hours

**ENGINE: Make** John Deere Diesel **Type** six cylinder vertical with two turbochargers and air to air aftercooler **Serial No.** \*RG6090R002655\* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 4.661" x 5.354" (118.4 mm x 136.0 mm) **Compression ratio** 16.0 to 1 **Displacement** 548 cu in (8984 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 water separator **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:** 108.9 - 118.2 lb/h (49.4 - 53.6 kg/h) **High idle:** 2150 - 2250 rpm **Turbo boost:** nominal 27.5 - 31.9 psi (190 - 220 kPa) as measured 29.9 psi (206 kPa)

**CHASSIS: Type** tracklayer-rubber tracked **Serial No.** \*1RW8335RABP905525\* **Track width** 76.0" (1930 mm) to 120.0" (3048 mm) **Length of track on ground** 99.0" (2515 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled power shift **Nominal travel speeds mph (km/h)** first 1.13 (1.82) second 1.52 (2.44) third 2.01 (3.24) fourth 2.70 (4.34) fifth 3.03 (4.87) sixth 3.49 (5.62) seventh 4.06 (6.53) eighth 4.67 (7.52) ninth 5.40 (8.69) tenth 6.23 (10.02) eleventh 7.23 (11.64) twelfth 8.34 (13.42) thirteenth 9.82 (15.81) fourteenth 13.16 (21.18) fifteenth 17.52 (28.20) sixteenth 23.46 (37.76) reverse 1.06 (1.70), 2.83 (4.56), 3.57 (5.75), 6.56 (10.56) @1500 engine rpm **Clutch** wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically actuated by foot pedal **Steering** electro-hydraulic differential steering controlled by steering wheel **Power take-off** 1000 rpm at 2004 engine rpm **Unladen tractor mass** 34945 lb (15851 kg)

## DRAWBAR PERFORMANCE

### Unballasted - 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)	Consumption Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th Gear									
220.15 (164.17)	34802 (154.81)	2.38 (3.82)	2105	11.6	0.510 (0.310)	13.73 (2.70)	204 (95)	63 (17)	28.77 (97.43)
5th Gear									
232.98 (173.73)	31888 (141.84)	2.74 (4.41)	2100	8.7	0.483 (0.294)	14.51 (2.86)	209 (98)	65 (19)	28.77 (97.43)
6th Gear									
241.33 (179.96)	27586 (122.71)	3.28 (5.28)	2100	5.3	0.466 (0.283)	15.03 (2.96)	195 (91)	61 (16)	28.85 (97.70)
7th Gear									
247.08 (184.24)	23967 (106.61)	3.87 (6.22)	2100	3.8	0.455 (0.277)	15.38 (3.03)	202 (94)	65 (18)	28.86 (97.73)
8th Gear									
250.61 (186.88)	20835 (92.68)	4.51 (7.26)	2101	2.7	0.447 (0.272)	15.67 (3.09)	209 (98)	68 (20)	28.86 (97.73)
9th Gear									
250.85 (187.06)	17900 (79.62)	5.26 (8.46)	2100	1.9	0.449 (0.273)	15.59 (3.07)	210 (99)	71 (22)	28.85 (97.70)
10th Gear									
249.34 (185.93)	15366 (68.35)	6.09 (9.79)	2100	1.4	0.450 (0.274)	15.56 (3.06)	215 (102)	73 (23)	28.85 (97.70)
11th Gear									
244.69 (182.47)	12928 (57.31)	7.10 (11.42)	2100	1.1	0.461 (0.281)	15.18 (2.99)	215 (102)	75 (24)	28.85 (97.70)
12th Gear									
241.03 (179.73)	11023 (49.03)	8.20 (13.20)	2101	0.9	0.468 (0.285)	14.95 (2.94)	216 (102)	77 (25)	28.83 (97.63)

#### TRACTOR SOUND LEVEL WITH CAB

dB(A)

At no load in 8th gear	71.7
Transport speed-no load- 16th gear	72.6
Bystander in 16th gear	83.9

#### TRACKS, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Track width	25.0 in (635 mm)	25.0 in (635 mm)
Ballast - Cast iron(front)	2550 lb (1156 kg)	None
- Cast iron(front frame)	1000 lb (454 kg)	None
Height of Drawbar	19.5 in (495 mm)	19.0 in (485 mm)
Static Weight with operator	38670 lb(17540 kg)	35120 lb(15930 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE 1:** During testing the engine was operated for 23.5 hours. During this period, the tractor experienced no active exhaust filter cleaning while operated in Auto Filter Cleaning Mode.

**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 occurred 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 110°F(43°C). This tractor did not meet the manufacturer's initial claims of 45% torque rise nor 12% power bulge. 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. **1999**, Nebraska Summary 782, December 14, 2011.

Roger M. Hoy  
Director

M.F. Kocher  
D.R. Keshwani  
P.J. Jasa  
Board of Tractor Test Engineers

**DRAWBAR PERFORMANCE**  
**Unballasted - 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)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th Gear									
220.68 (164.56)	34790 (154.75)	2.38 (3.83)	2105	11.4	0.510 (0.310)	13.72 (2.70)	202 (94)	63 (17)	28.77 (97.43)
5th Gear									
234.75 (175.05)	32735 (145.61)	2.69 (4.33)	2084	9.9	0.487 (0.296)	14.37 (2.83)	212 (100)	66 (19)	28.78 (97.46)
6th Gear									
255.12 (190.24)	30994 (137.87)	3.09 (4.97)	2026	7.6	0.465 (0.283)	15.05 (2.96)	206 (97)	61 (16)	28.85 (97.70)
7th Gear									
267.81 (199.71)	29902 (133.01)	3.36 (5.41)	1885	7.0	0.455 (0.276)	15.41 (3.04)	212 (100)	65 (18)	28.86 (97.73)
8th Gear									
273.70 (204.10)	27307 (121.47)	3.76 (6.05)	1799	5.5	0.447 (0.272)	15.66 (3.08)	216 (102)	68 (20)	28.86 (97.73)
9th Gear									
276.36 (206.08)	23461 (104.36)	4.42 (7.11)	1801	3.8	0.442 (0.269)	15.83 (3.12)	216 (102)	71 (22)	28.85 (97.70)
10th Gear									
278.24 (207.48)	20262 (90.13)	5.15 (8.29)	1800	2.6	0.440 (0.268)	15.92 (3.14)	216 (102)	73 (23)	28.85 (97.70)
11th Gear									
276.52 (206.20)	17173 (76.39)	6.04 (9.72)	1800	1.8	0.444 (0.270)	15.79 (3.11)	216 (102)	75 (24)	28.85 (97.70)
12th Gear									
274.52 (204.71)	14722 (63.49)	6.99 (11.25)	1800	1.4	0.447 (0.272)	15.68 (3.09)	216 (102)	77 (25)	28.83 (97.63)
13th Gear									
272.06 (202.87)	12349 (54.93)	8.27 (13.30)	1800	1.1	0.453 (0.275)	15.47 (3.05)	217 (103)	77 (25)	28.83 (97.63)

**DRAWBAR PERFORMANCE**  
**Ballasted - 1800 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 Gear									
189.15 (141.05)	39657 (176.40)	1.79 (2.87)	2155	13.0	0.532 (0.324)	13.15 (2.59)	189 (87)	43 (6)	28.99 (98.17)
4th Gear									
232.99 (173.74)	36948 (164.35)	2.37 (3.81)	2072	10.8	0.494 (0.301)	14.17 (2.79)	196 (91)	46 (8)	28.99 (98.17)
5th Gear									
249.11 (185.76)	35501 (157.92)	2.64 (4.24)	2029	9.7	0.477 (0.290)	14.69 (2.89)	201 (94)	49 (9)	28.99 (98.17)
6th Gear									
263.24 (196.30)	33903 (150.81)	2.91 (4.68)	1923	8.4	0.461 (0.280)	15.20 (2.99)	208 (98)	51 (11)	29.00 (98.21)
7th Gear									
270.37 (201.61)	31400 (139.67)	3.23 (5.20)	1800	6.8	0.452 (0.275)	15.48 (3.05)	214 (101)	52 (11)	29.01 (98.24)
8th Gear									
276.57 (206.24)	27248 (121.20)	3.81 (6.12)	1800	4.6	0.441 (0.268)	15.87 (3.13)	213 (100)	54 (12)	29.01 (98.24)
9th Gear									
279.31 (208.28)	23495 (104.51)	4.46 (7.18)	1800	3.2	0.438 (0.266)	15.99 (3.15)	213 (101)	56 (13)	29.02 (98.27)
10th Gear									
280.88 (209.45)	20333 (90.44)	5.18 (8.34)	1799	2.4	0.434 (0.264)	16.13 (3.18)	213 (101)	58 (15)	29.02 (98.27)
11th Gear									
278.62 (207.77)	17266 (76.80)	6.05 (9.74)	1801	1.9	0.439 (0.267)	15.96 (3.14)	214 (101)	60 (16)	29.01 (98.24)
12th Gear									
277.26 (206.75)	14822 (65.93)	7.02 (11.29)	1800	1.5	0.439 (0.267)	15.95 (3.14)	214 (101)	61 (16)	29.00 (98.21)
13th Gear									
274.15 (204.43)	12426 (55.27)	8.28 (13.32)	1800	1.2	0.447 (0.272)	15.68 (3.09)	215 (101)	62 (17)	29.00 (98.21)

## HYDRAULIC PERFORMANCE

CATEGORY: IVN

Quick Attach: yes

OECD Static test

Maximum force exerted through whole range:

21167 lbs (94.2 kN)

63 cc pump

85 cc pump

i) Sustained pressure at compensator cutoff:

2959 psi (204 bar)

2909 psi (201 bar)

**three outlet sets combined**

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

48.7 GPM (184.4 l/min)    64.3 GPM (243.4 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

48.6 GPM (184.0 l/min)    64.4 GPM (243.7 l/min)

Delivery pressure:

2652 psi (183 bar)    2425 psi (167 bar)

Power:

75.2 HP (56.1 kW)    91.1 HP (67.9 kW)

**single outlet set**

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

38.8 GPM (146.9 l/min)    37.6 GPM (142.4 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

37.4 GPM (141.5 l/min)    36.1 GPM (136.8 l/min)

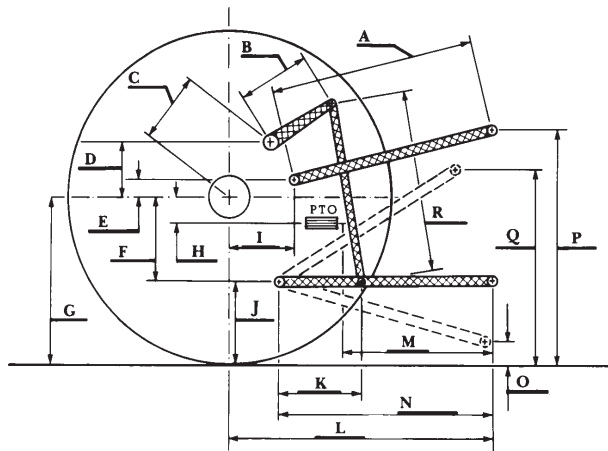
Delivery pressure:

2289 psi (158 bar)    2232 psi (154 bar)

Power:

49.9 HP (37.2 kW)    47.0 HP (35.1 kW)

### HITCH DIMENSIONS AS TESTED - NO LOAD



	inch	mm
A	28.1	715
B	20.5	520
C	24.8	631
D	24.2	615
E	15.5	394
F	11.5	292
G	35.0	888
H	3.1	80
I	18.5	470
J	23.5	596
K	39.8	1011
L	53.6	1361
*L'	59.5	1511
M	30.6	777
N	45.7	1161
O	9.0	230
P	50.5	1283
Q	41.1	1043
R	44.7	1135

\*L' to Quick Attach ends



**JOHN DEERE 8335RT DIESEL**