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2011

Test 1990: John Deere 8335R

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1990 - SUMMARY 758

JOHN DEERE 8335R DIESEL

16 SPEED

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

Dates of tests: April 6 -15, 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) 0.8476 Fuel weight 7.057 lbs/gal (0.846 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: 23.0 hours

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with two turbochargers and air to air aftercooler **Serial No.***RG6090R000720* **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: 109.7 - 118.8 lb/h (49.8 - 53.9 kg/h) **High idle:** 2175 - 2225 rpm **Turbo boost:** nominal 29.7 - 32.6 psi (205 - 225 kPa) as measured 31.2 psi (215 kPa)

CHASSIS: Type front wheel assist with duals **Serial No.***1RW8335RKBP041165* **Tread width** rear 60.0" (1524 mm) to 132.6" (3368 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) **Wheelbase** 118.9" (3020 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 1.17 (1.88) second 1.57 (2.52) third 2.09 (3.36) fourth 2.80 (4.50) fifth 3.14 (5.05) sixth 3.62 (5.82) seventh 4.20 (6.76) eighth 4.84 (7.79) ninth 5.59 (9.00) tenth 6.45 (10.38) eleventh 7.49 (12.06) twelfth 8.64 (13.90) thirteenth 10.17 (16.38) fourteenth 13.63 (21.94) fifteenth 18.15 (29.21) sixteenth 24.31 (39.13) reverse 1.09 (1.76), 2.93 (4.72), 3.70 (5.96), 6.80 (10.95) @ 1500 engine rpm **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** 1000 rpm at 2004 engine rpm **Unladen tractor mass** 27375 lb (12417 kg)

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—1048 rpm)					
306.60 (228.63)	2099	16.34 (61.85)	0.376 (0.229)	18.76 (3.70)	
Standard Power Take-off Speed(1000 rpm)					
331.41 (247.13)	2004	17.49 (66.19)	0.372 (0.226)	18.95 (3.73)	
Maximum Power (1 hour)					
339.73 (253.34)	1800	17.77 (67.28)	0.369 (0.225)	19.11 (3.77)	
VARYING POWER AND FUEL CONSUMPTION					
306.60 (228.63)	2099	16.34 (61.85)	0.376 (0.229)	18.76 (3.70)	Air temperature
267.77 (199.68)	2155	14.56 (55.10)	0.384 (0.233)	18.39 (3.62)	74°F (23°C)
201.71 (150.42)	2164	11.66 (44.12)	0.408 (0.248)	17.31 (3.41)	Relative humidity
135.03 (100.69)	2177	8.77 (33.19)	0.458 (0.279)	15.40 (3.03)	21%
67.93 (50.65)	2186	6.12 (23.18)	0.636 (0.387)	11.09 (2.18)	Barometer
4.18 (3.12)	2196	3.76 (14.23)	6.348 (3.862)	1.11 (0.22)	28.67" Hg (97.09 kPa)
Maximum Torque - 1085 lb.-ft. (1471 Nm) at 1601 rpm Maximum Torque Rise - 41.4% Torque rise at 1699 engine rpm - 35% Power increase at 1800 rpm - 10.8%					

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)
Maximum Power—8th Gear									
267.80 (199.70)	21327 (94.86)	4.71 (7.58)	2099	6.0	0.433 (0.264)	16.28 (3.21)	205 (96)	56 (13)	28.83 (97.63)
75% of Pull at Maximum Power—8th Gear									
210.90 (157.27)	16009 (71.21)	4.94 (7.95)	2158	4.1	0.457 (0.278)	15.45 (3.04)	202 (94)	63 (17)	28.82 (97.60)
50% of Pull at Maximum Power—8th Gear									
143.45 (106.97)	10677 (47.49)	5.04 (8.11)	2170	2.7	0.512 (0.312)	13.78 (2.71)	190 (88)	65 (18)	28.83 (97.63)
75% of Pull at Reduced Engine Speed—11th Gear									
211.00 (157.34)	15942 (70.91)	4.96 (7.98)	1401	4.1	0.409 (0.249)	17.24 (3.40)	210 (99)	63 (17)	28.83 (97.63)
50% of Pull at Reduced Engine Speed—11th Gear									
143.90 (107.31)	10680 (47.50)	5.06 (8.14)	1409	2.7	0.421 (0.256)	16.76 (3.30)	197 (92)	65 (18)	28.83 (97.63)

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)
6th Gear								
235.25 (175.43)	26222 (116.64)	3.37 (5.42)	2146	11.8	0.474 (0.289)	14.88 (2.93)	190 (88)	28.94 (98.00)
7th Gear								
259.75 (193.70)	24414 (108.60)	3.99 (6.42)	2098	8.1	0.448 (0.272)	15.76 (3.11)	197 (91)	28.95 (98.04)
8th Gear								
267.80 (199.70)	21327 (94.86)	4.71 (7.58)	2099	6.0	0.433 (0.264)	16.28 (3.21)	205 (96)	28.83 (97.63)
9th Gear								
268.85 (200.48)	18267 (81.26)	5.52 (8.88)	2101	4.7	0.431 (0.262)	16.36 (3.22)	210 (99)	28.83 (97.63)
10th Gear								
270.65 (201.82)	15878 (70.63)	6.40 (10.29)	2098	4.1	0.430 (0.261)	16.42 (3.23)	207 (97)	28.83 (97.63)
11th Gear								
267.45 (199.44)	13360 (59.43)	7.51 (12.09)	2101	3.5	0.436 (0.265)	16.18 (3.19)	212 (100)	28.83 (97.63)
12th Gear								
264.40 (197.16)	11424 (50.81)	8.68 (13.96)	2098	3.1	0.436 (0.265)	16.17 (3.19)	214 (101)	28.83 (97.63)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 8th gear	70.9	71.0
Transport speed-no load-16th gear		72.5
Bystander in 16th gear		82.1

TIRES AND WEIGHT

Rear Tires - No., size, ply & psi(kPa)	Tested Without Ballast
Front Tires - No., size, ply & psi(kPa)	Four 480/80R50;***;12(85)
Height of Drawbar	Two 420/85R34;***;23(160)
Static Weight with operator - Rear	21.0 in (535 mm)
- Front	16070 lb (7289 kg)
- Total	11480 lb (5207 kg)
	27550 lb(12496 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: During testing the engine was operated for 23.0 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. This tractor did not meet the manufacturer's claims of 44% torque rise nor 12% power bulge. For the maximum power tests the fuel temperature at the injection pump inlet was maintained at 101°F (39°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. **1990**, Nebraska Summary 758, May 18, 2011.

Roger M. Hoy
Director

M.F. Kocher
D.R. Keshwani
J.A. Smith
Board of Tractor Test Engineers

DRAWBAR PERFORMANCE
UNBALLASTED-FRONT DRIVE ENGAGED - 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)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
6th Gear									
237.30 (176.95)	26284 (116.91)	3.39 (5.46)	2144	11.4	0.470 (0.286)	15.01 (2.96)	191 (88)	46 (8)	28.94 (98.00)
7th Gear									
259.80 (193.73)	24955 (111.00)	3.91 (6.28)	2082	9.4	0.452 (0.275)	15.61 (3.08)	200 (93)	53 (12)	28.95 (98.04)
8th Gear									
280.45 (209.13)	23782 (105.79)	4.42 (7.11)	2016	8.2	0.441 (0.268)	16.02 (3.16)	213 (101)	56 (13)	28.83 (97.63)
9th Gear									
294.30 (219.46)	22592 (100.49)	4.89 (7.86)	1900	6.7	0.429 (0.261)	16.47 (3.24)	215 (101)	54 (12)	28.83 (97.63)
10th Gear									
299.10 (223.04)	20801 (92.53)	5.39 (8.67)	1801	5.9	0.422 (0.257)	16.71 (3.29)	215 (101)	57 (14)	28.83 (97.63)
11th Gear									
299.50 (223.34)	17725 (78.84)	6.34 (10.20)	1801	4.8	0.424 (0.258)	16.65 (3.28)	215 (101)	59 (15)	28.83 (97.63)
12th Gear									
298.70 (222.74)	15199 (67.61)	7.37 (11.86)	1800	4.0	0.421 (0.256)	16.76 (3.30)	216 (102)	62 (17)	28.83 (97.63)
13th Gear									
296.85 (221.36)	12728 (56.61)	8.75 (14.08)	1801	3.5	0.423 (0.257)	16.69 (3.29)	216 (102)	63 (17)	28.83 (97.63)

HYDRAULIC PERFORMANCE

CATEGORY: IVN

Quick Attach: Yes

OECD Static test

Maximum force exerted through whole range: 18326 lbs (81.5 kN)

i) Sustained pressure at compensator cutoff: 2993 psi (201 bar)
three outlet sets combined

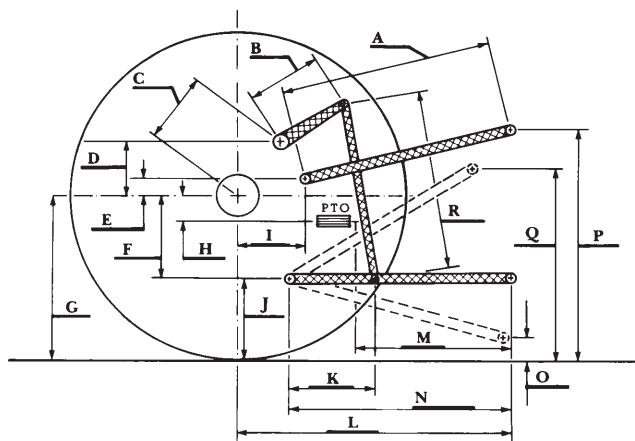
ii) Pump delivery rate at minimum pressure and rated engine speed: 64.1 GPM (242.7 l/min)

iii) Pump delivery rate at maximum hydraulic power: 64.1 GPM (242.7 l/min)
Delivery pressure: 2511 psi (173 bar)
Power: 93.9 HP (70.0 kW)

single outlet set

ii) Pump delivery rate at minimum pressure and rated engine speed: 37.5 GPM (141.9 l/min)

iii) Pump delivery rate at maximum hydraulic power: 35.1 GPM (132.8 l/min)
Delivery pressure: 2274 psi (157 bar)
Power: 46.6 HP (34.7 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	27.1	689
B	20.5	520
C	20.9	532
D	18.9	480
E	12.0	304
F	14.4	365
G	37.0	940
H	7.9	200
I	21.9	555
J	22.6	575
K	28.9	733
L	56.6	1438
*L'	62.5	1588
M	29.7	755
N	45.7	1162
O	9.0	230
P	49.7	1262
Q	40.7	1035
R	43.5	1106

*L' to Quick Attach ends



JOHN DEERE 8335R DIESEL