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2021

Test 2237: John Deere 8RX 340

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 2237-SUMMARY 1189

JOHN DEERE 8RX 340 DIESEL

e23 TRANSMISSION

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption		D.E.F. Consumption		Mean Atmospheric Conditions
		Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Gal/hr (l/h)	
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1053 rpm)						
312.92 (233.35)	2101	16.04 (60.74)	0.359 (0.218)	19.50 (3.84)	0.67 (2.53)	Fuel used during active exhaust regeneration-0.98 gal (3.69l) (see note 1, p.2)
Standard Power Take-off Speed(1000 rpm)						
340.09 (253.60)	1995	17.23 (65.23)	0.355 (0.216)	19.74 (3.89)	0.71 (2.70)	
Maximum Power (1 hour)						
352.66 (262.98)	1750	17.38 (65.78)	0.345 (0.210)	20.29 (4.00)	0.72 (2.74)	

VARYING POWER AND FUEL CONSUMPTION

312.92 (233.35)	2101	16.04 (60.74)	0.359 (0.218)	19.50 (3.84)	0.67 (2.53)	Air temperature
272.94 (203.53)	2155	14.42 (54.59)	0.370 (0.225)	18.93 (3.73)	0.62 (2.34)	71°F (22°C)
205.77 (153.44)	2166	11.51 (43.55)	0.391 (0.238)	17.88 (3.52)	0.52 (1.96)	Relative humidity
137.77 (102.74)	2178	8.70 (32.95)	0.442 (0.269)	15.83 (3.12)	0.26 (0.99)	48%
69.28 (51.66)	2191	6.24 (23.61)	0.630 (0.383)	11.11 (2.19)	0.13 (0.50)	Barometer
1.13 (0.84)	2200	4.49 (16.98)	27.836 (16.932)	0.25 (0.05)	0.19 (0.73)	28.64" Hg (97.00 kPa)

Maximum Torque - 1155 lb.-ft. (1566 Nm) at 1550 rpm

Maximum Torque Rise - 47.6%

Torque rise at 1680 engine rpm - 40%

Power increase at 1750 engine rpm - 12.7%

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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing dry med bulb	Barom. inch Hg (kPa)	
Power at Rated Engine Speed—9th Gear-Manual mode										
261.44 (194.96)	22698 (100.97)	4.32 (6.95)	2100	3.6	0.429 (0.261)	16.30 (3.21)	0.023 (0.014)	212 (100)	53 (11)	28.80 (97.53)
75% of Pull at Rated Engine Speed—9th Gear-Manual mode										
204.54 (152.53)	17031 (75.76)	4.50 (7.24)	2160	2.2	0.446 (0.272)	15.68 (3.09)	0.023 (0.014)	211 (99)	71 (22)	28.82 (97.60)
50% of Pull at Rated Engine Speed—9th Gear-Manual mode										
138.77 (103.48)	11360 (50.53)	4.58 (7.37)	2172	1.1	0.492 (0.299)	14.22 (2.80)	0.022 (0.013)	210 (99)	72 (22)	28.83 (97.63)
75% of Pull at Reduced Engine Speed—4.6 mph (7.4 km/h) Auto mode										
204.82 (152.73)	17019 (75.70)	4.52 (7.27)	1391	2.2	0.396 (0.241)	17.66 (3.48)	0.016 (0.009)	210 (99)	72 (22)	28.83 (97.63)
50% of Pull at Reduced Engine Speed—4.6 mph (7.4 km/h) Auto mode										
139.05 (103.69)	11418 (50.79)	4.57 (7.35)	1391	1.1	0.440 (0.268)	15.89 (3.13)	0.013 (0.008)	208 (98)	72 (22)	28.83 (97.63)

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

Dates of tests: April 28 to May 4, 2021

Manufacturer: John Deere Tractor Works, 3500
East Donald St., P.O. Box 270, Waterloo Ia,
50704-0270

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8404 **Fuel weight** 6.998 lbs/gal (0.839 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil SAE 10W-30 API service classification CK-4 Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Front axle lubricant** John Deere Hy-Gard fluid **Total time engine was operated:** 18.5 hours

ENGINE: Make John Deere **Diesel Type** six cylinder vertical with turbocharger, air to air aftercooler and D.E.F (diesel exhaust fluid) exhaust treatment **Serial No.** *RG6090U088890* **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** DOC (diesel oxidation catalyst), SCR (selective catalyst reduction) and regenerative DPF (diesel particulate filter) integrated within a vertical muffler **Cooling medium temperature control** thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 106.0 - 114.5 lb/h (48.1 - 51.9 kg/h) **High idle:** 2190 - 2210 rpm **Turbo boost:** nominal 22.5 - 26.4 psi (155 - 175 kPa) as measured 23.5 psi (162 kPa)

CHASSIS: Type front wheel assist with rubber tracks **Serial No.** *1RW8340DCLK801235* **Tread width** rear 88.0" (2235 mm) front 88.0" (2235 mm) **Wheelbase** 127.4" (3235 mm) **Length of track on ground** front 58.8" (1490 mm), rear 71.5" (1815 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range power shift **Nominal travel speeds mph (km/h)** first 1.38 (2.22) second 1.60 (2.58) third 1.85 (2.98) fourth 2.15 (3.46) fifth 2.49 (4.01) sixth 2.89 (4.65) seventh 3.31 (5.34) eighth 3.86 (6.21) ninth 4.46 (7.18) tenth 5.16 (8.31) eleventh 6.00 (9.65) twelfth 6.94 (11.17) thirteenth 8.06 (12.97)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED
MANUAL MODE - 2100 ENGINE RPM
DRAWBAR POWER AT SELECTED TRAVEL SPEED SETTINGS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	D.E.F. Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cooling med	Air dry bulb	Barom. inch Hg (kPa)						
5th Gear					212.21 (158.24)	36114 (160.64)	2.21 (3.55)	2154	14.2	0.484 (0.294)	14.47 (2.85)	0.024 (0.015)	210 (99)	55 (13)	28.92 (97.93)
6th Gear					234.77 (175.06)	33324 (148.23)	2.65 (4.26)	2143	10.9	0.463 (0.282)	15.10 (2.97)	0.025 (0.015)	211 (99)	58 (14)	28.93 (97.97)
7th Gear					247.06 (184.23)	30425 (135.33)	3.05 (4.90)	2101	8.8	0.452 (0.275)	15.49 (3.05)	0.026 (0.016)	211 (99)	63 (17)	28.92 (97.93)
8th Gear					260.75 (194.44)	26808 (119.25)	3.65 (5.87)	2100	5.6	0.431 (0.262)	16.24 (3.20)	0.022 (0.014)	212 (100)	55 (13)	28.81 (97.56)
9th Gear					261.44 (194.96)	22698 (100.97)	4.32 (6.95)	2100	3.6	0.429 (0.261)	16.30 (3.21)	0.023 (0.014)	212 (100)	53 (11)	28.80 (97.53)
10th Gear					263.62 (196.58)	19597 (87.17)	5.04 (8.11)	2100	2.7	0.427 (0.260)	16.39 (3.23)	0.023 (0.014)	211 (99)	56 (13)	28.82 (97.60)
11th Gear					263.41 (196.42)	16746 (74.49)	5.90 (9.50)	2100	2.0	0.428 (0.260)	16.35 (3.22)	0.024 (0.015)	212 (100)	59 (15)	28.82 (97.60)
12th Gear					261.29 (194.84)	14279 (63.51)	6.86 (11.04)	2100	1.5	0.430 (0.262)	16.26 (3.20)	0.024 (0.015)	212 (100)	62 (16)	28.82 (97.60)
13th Gear					257.51 (192.02)	12074 (53.71)	8.00 (12.87)	2100	1.1	0.435 (0.265)	16.09 (3.17)	0.022 (0.015)	212 (100)	66 (19)	28.82 (97.60)
14th Gear					247.80 (184.78)	10092 (44.89)	9.21 (14.82)	2100	0.9	0.455 (0.277)	15.38 (3.03)	0.024 (0.014)	213 (101)	70 (21)	28.82 (97.60)

fourteenth 9.25 (14.89) fifteenth 10.74 (17.29) sixteenth 12.24 (19.70) seventeenth 14.21 (22.87) eighteenth 16.47 (26.50) nineteenth 19.11 (30.76) twentieth 22.12 (35.60) twenty-first 25.68 (41.33) twenty-second 26.10 (42.00) twenty-third 26.10 (42.00) (electronically limited) reverse 1.66 (2.67), 2.23 (3.59), 3.00 (4.82), 4.00 (6.43), 4.62 (7.44), 6.21 (10.00), 8.35 (13.44), 11.14 (17.92), 14.73 (23.71), 18.64 (30.00), 18.64 (30.00) (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** 1000 rpm at 1995 engine rpm **Unladen tractor mass** 42635 lb (19339 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The manufacturer declares that the average time between active regenerations is 40 hours. No power change was observed during the active regeneration.

NOTE 2: The John Deere 8RX 340 T.E.C.U. (Tractor Electronic Control Unit) is compliant with ISOBUS 11783.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. 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. 2237, Nebraska Summary 1189, October 19, 2021.

Roger M. Hoy
 Director

P.J. Jasa
 J.D. Luck
 S. Pitla
 Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 9th gear	66.6	66.8
Transport speed-no load- 21st gear		71.9
Bystander in 21st gear		85.5

Horizontal distance of drawbar hitch point behind rear wheel axis - 56.8"(1442 mm)

TRACKS AND WEIGHT

Rear tracks - no & size
Front tracks - no & size
Height of drawbar
Static weight with operator- Rear
 - Front
 - Total

Tested Without Ballast

2 x 18.0 in (457 mm)
 2 x 18.0 in (457 mm)
 22.5 in (570 mm)
 24585 lb (11152 kg)
 18225 lb (8267 kg)
 42810 lb (19418 kg)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED - AUTO MODE
(Loads based on 2100 engine rpm manual mode performance runs)

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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3.0 mph (4.8 km/h)										
233.99 (174.49)	32762 (145.73)	2.68 (4.31)	1624	10.7	0.434 (0.264)	16.11 (3.17)	0.021 (0.013)	211 (99)	60 (15)	28.93 (97.93)
3.4 mph (5.4 km/h)										
247.59 (184.62)	30113 (133.95)	3.08 (4.96)	1828	8.6	0.434 (0.264)	16.12 (3.18)	0.024 (0.014)	212 (100)	66 (19)	28.92 (97.93)
3.9 mph (6.2 km/h)										
260.92 (194.57)	26730 (118.90)	3.66 (5.89)	1815	5.5	0.411 (0.250)	17.04 (3.36)	0.019 (0.012)	209 (98)	56 (13)	28.82 (97.58)
4.5 mph (7.2 km/h)										
261.50 (195.00)	22618 (100.61)	4.34 (6.98)	1818	3.5	0.398 (0.242)	17.57 (3.46)	0.019 (0.011)	210 (99)	55 (13)	28.81 (97.56)
5.2 mph (8.4 km/hr)										
263.46 (196.46)	19371 (86.16)	5.10 (8.21)	1827	2.6	0.408 (0.248)	17.14 (3.38)	0.019 (0.012)	210 (99)	58 (14)	28.82 (97.60)
6.0 mph (9.6 km/h)										
263.17 (196.24)	16823 (74.83)	5.87 (9.45)	1805	2.1	0.406 (0.247)	17.25 (3.40)	0.020 (0.012)	210 (99)	61 (16)	28.82 (97.60)
7.0 mph (11.2 km/h)										
261.28 (194.83)	14234 (63.32)	6.88 (11.07)	1814	1.5	0.410 (0.250)	17.06 (3.36)	0.021 (0.013)	210 (99)	64 (18)	28.82 (97.60)
8.1 mph (13.0 km/h)										
257.47 (192.00)	12042 (53.56)	8.02 (12.91)	1833	1.1	0.426 (0.259)	16.42 (3.23)	0.022 (0.013)	212 (100)	69 (21)	28.82 (97.60)
9.2 mph (14.8 km/h)										
247.39 (184.47)	10135 (45.08)	9.15 (14.73)	1798	0.9	0.433 (0.263)	16.17 (3.19)	0.022 (0.013)	212 (100)	70 (21)	28.82 (97.60)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED
MANUAL MODE - 1750 ENGINE RPM

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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
5th Gear										
211.13 (157.44)	36022 (160.23)	2.20 (3.54)	2154	14.4	0.485 (0.295)	14.43 (2.84)	0.024 (0.015)	210 (99)	55 (13)	28.92 (97.93)
6th Gear										
234.80 (175.09)	33319 (148.21)	2.65 (4.26)	2141	10.8	0.465 (0.283)	15.05 (2.97)	0.024 (0.015)	211 (99)	58 (14)	28.93 (97.97)
7th Gear										
246.83 (184.06)	30476 (135.56)	3.04 (4.89)	2099	9.0	0.452 (0.275)	15.48 (3.05)	0.026 (0.016)	211 (99)	63 (17)	28.92 (97.93)
8th Gear										
268.91 (200.53)	29642 (131.85)	3.41 (5.48)	2007	8.1	0.442 (0.269)	15.82 (3.12)	0.023 (0.014)	214 (101)	68 (14)	28.91 (97.90)
9th Gear										
285.02 (212.54)	28107 (125.03)	3.81 (6.12)	1914	7.1	0.424 (0.258)	16.51 (3.25)	0.023 (0.014)	213 (100)	69 (21)	28.91 (97.90)
10th Gear										
286.34 (213.52)	26339 (117.16)	4.08 (6.57)	1750	5.8	0.422 (0.257)	16.59 (3.27)	0.023 (0.014)	214 (101)	70 (21)	28.91 (97.90)
11th Gear										
295.55 (220.39)	22911 (101.91)	4.84 (7.79)	1753	3.8	0.410 (0.250)	17.05 (3.36)	0.022 (0.013)	212 (100)	60 (16)	28.82 (97.60)
12th Gear										
297.23 (221.64)	19757 (87.88)	5.64 (9.08)	1750	2.9	0.407 (0.248)	17.18 (3.39)	0.022 (0.013)	212 (100)	63 (17)	28.82 (97.60)
13th Gear										
297.19 (221.61)	16899 (75.17)	6.60 (10.61)	1749	2.1	0.407 (0.248)	17.18 (3.39)	0.022 (0.014)	213 (101)	66 (19)	28.82 (97.60)
14th Gear										
292.52 (218.13)	14392 (64.02)	7.62 (12.26)	1750	1.5	0.413 (0.251)	16.94 (3.34)	0.022 (0.013)	213 (100)	67 (19)	28.82 (97.60)
15th Gear										
287.09 (214.08)	12112 (53.87)	8.89 (14.31)	1750	1.1	0.422 (0.257)	16.59 (3.27)	0.022 (0.013)	212 (100)	69 (21)	28.82 (97.60)

HYDRAULIC PERFORMANCE

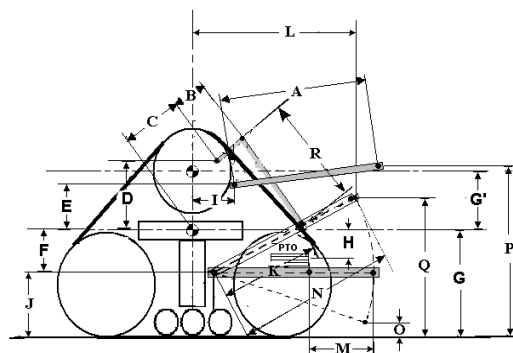
CATEGORY: IVN
Quick Attach: Yes
OECD Static test

	<u>Lift cylinders</u>	
Maximum force exerted through whole range:	20235 lbs (90.0 kN)	2x115 mm
	15248 lbs (67.8 kN)	2x100 mm
<hr/>		
	<u>85 cc pump</u>	<u>85 cc and 35cc pumps combined</u>
i) Sustained pressure at compensator cutoff:	2915 psi (201 bar)	2941 psi (203 bar)
<u>three outlet sets combined</u>		
ii) Pump delivery rate at minimum pressure and rated engine speed:	60.9 GPM (230.4 l/min)	86.0 GPM (325.4 l/min)
iii) Pump delivery rate at maximum hydraulic power:	60.7 GPM (229.8 l/min)	80.5 GPM (304.8 l/min)
Delivery pressure:	2458 psi (170 bar)	2239 psi (154 bar)
Power:	87.1 HP (64.9 kW)	105.2 HP (78.5 kW)
<u>single outlet set</u>		
ii) Pump delivery rate at minimum pressure and rated engine speed:	<u>1/2" couplers</u> 36.5 GPM (138.2 l/min)	<u>3/4" couplers</u> 43.2 GPM (163.3 l/min)
iii) Pump delivery rate at maximum hydraulic power:	34.4 GPM (130.3 l/min)	41.9 GPM (158.5 l/min)
Delivery pressure:	2320 psi (160 bar)	2309 psi (159 bar)
Power:	46.6 HP (34.7 kW)	56.4 HP (42.1 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	27.4	695
B	20.5	520
C	33.3	847
D	28.8	732
E	21.4	544
F	4.5	113
G	29.2	741
*G'	16.4	417
*H	2.0	52
I	31.3	796
J	24.7	628
K	28.9	735
L	59.8	1520
*L'	66.5	1690
M	25.9	657
N	42.9	1090
O	9.1	230
P	51.7	1313
Q	43.3	1100
R	46.3	1175

*G' to undercarriage pivot point
*H PTO is above undercarriage pivot point
*L' to Quick Attach ends



RECOMMENDED CITATION FORMAT:

NTTL.(2021). Nebraska OECD tractor test 2237 for John Deere 8RX 340 e23 Diesel.
Lincoln, NE:Nebraska Tractor Test Laboratory. Retrieved from <http://tractortestlab.unl.edu>



JOHN DEERE 8RX 340 DIESEL
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln