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2012

## Test 2030: John Deere 9360R

Nebraska Tractor Test Lab

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# NEBRASKA OECD TRACTOR TEST 2030-SUMMARY 824

## JOHN DEERE 9360R DIESEL

### 18 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>SEE NOTE 1 - PAGE 2</b>					
<b>Rated Engine Speed—(PTO speed—1108 rpm)</b>					
309.30 (230.65)	2099	17.66 (66.85)	0.402 (0.245)	17.51 (3.45)	
<b>Standard Power Take-off Speed—(PTO speed—1000 rpm)</b>					
344.13 (256.62)	1895	19.07 (72.19)	0.390 (0.237)	18.04 (3.55)	
<b>Maximum Power (1 hour)</b>					
346.07 (258.06)	1800	19.25 (72.85)	0.391 (0.238)	17.98 (3.54)	

#### VARYING POWER AND FUEL CONSUMPTION

309.30 (230.65)	2099	17.66 (66.85)	0.402 (0.245)	17.51 (3.45)	Air temperature
263.70 (196.64)	2108	15.46 (58.53)	0.412 (0.251)	17.06 (3.36)	74°F (23°C)
199.75 (148.95)	2127	12.62 (47.79)	0.445 (0.270)	15.82 (3.12)	Relative humidity
134.15 (100.04)	2148	9.64 (36.48)	0.505 (0.307)	13.92 (2.74)	33%
67.95 (50.67)	2168	6.98 (26.43)	0.723 (0.440)	9.73 (1.92)	Barometer
4.30 (3.21)	2186	5.06 (19.14)	8.272 (5.032)	0.85 (0.17)	28.77" Hg (97.43 kPa)

Maximum Torque - 1108 lb.-ft. (1502 Nm) at 1599 rpm

Maximum Torque Rise - 43.4%

Torque rise at 1699 engine rpm - 38%

Power increase at 1800 engine rpm - 11.8%

#### 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	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—7th Gear</b>									
279.64 (208.52)	21862 (97.25)	4.80 (7.72)	2101	2.9	0.448 (0.273)	15.70 (3.09)	202 (94)	66 (19)	28.76 (97.39)
<b>75% of Pull at Maximum Power—7th Gear</b>									
218.20 (162.71)	16437 (73.12)	4.98 (8.01)	2164	2.1	0.483 (0.294)	14.58 (2.87)	186 (86)	55 (13)	28.79 (97.49)
<b>50% of Pull at Maximum Power—7th Gear</b>									
147.71 (110.15)	10937 (48.65)	5.07 (8.15)	2186	1.4	0.548 (0.333)	12.85 (2.53)	185 (85)	55 (13)	28.79 (97.49)
<b>75% of Pull at Reduced Engine Speed—10th Gear</b>									
217.67 (162.31)	16416 (73.02)	4.98 (8.01)	1583	2.2	0.440 (0.268)	15.97 (3.15)	194 (90)	55 (13)	28.79 (97.49)
<b>50% of Pull at Reduced Engine Speed—10th Gear</b>									
146.78 (109.45)	10932 (48.63)	5.04 (8.10)	1589	1.4	0.474 (0.288)	14.85 (2.93)	186 (86)	55 (13)	28.79 (97.49)

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

**Dates of Test:** May 22 - June 4, 2012

**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) 0.8448 Fuel weight 7.034 lbs/gal (0.843 kg/l) Oil SAE 15W-40 API service classification CH-4 Transmission, hydraulic and final drive lubricant John Deere Hy-Gard fluid Total time engine was operated: 43.5 hours

**ENGINE:** Make John Deere Diesel Type six cylinder vertical with two turbochargers and air to air aftercooler Serial No. \*RG6090R019659\* 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 oil, radiator for transmission, front and rear axle oil Fuel filter two paper cartridges Fuel cooler radiator for returned 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:** 118.8 - 128.8 lb/h (53.9 - 58.4 kg/h) High idle: 2150 - 2250 rpm (2160 - 2200 rpm with PTO engaged) Turbo boost: nominal 35.5 - 38.4 psi (245 - 265 kPa) as measured 37.1 psi (256 kPa)

**CHASSIS:** Type four wheel drive with duals Serial No. \*1RW9360RTCP002278\* Tread width rear 60.2" (1530 mm) to 131.8" (3348 mm), front 60.2" (1530 mm) to 131.8" (3348 mm) Wheelbase 137.8" (3500 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 2.37 (3.81) second 2.91 (4.69) third 3.23 (5.19) fourth 3.60 (5.79) fifth 3.96 (6.38) sixth 4.42 (7.12) seventh 4.90 (7.89) eighth 5.47 (8.81) ninth 6.03 (9.71) tenth 6.74 (10.84) eleventh 7.46 (12.00) twelfth 8.25 (13.27) thirteenth 9.18 (14.77) fourteenth 10.15 (16.33) fifteenth 12.54 (20.18) sixteenth 15.43 (24.83) seventeenth 19.08 (30.70) eighteenth 23.48 (37.78) reverse 2.37 (3.81), 3.23 (5.19), 3.60 (5.79), 4.90 (7.89), 5.47 (8.81), 7.46 (12.00)

## DRAWBAR PERFORMANCE

(Unballasted at 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)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
1st Gear									
211.73 (157.88)	36076 (160.47)	2.21 (3.55)	2162	10.3	0.510 (0.310)	13.78 (2.71)	187 (86)	52 (11)	28.76 (97.39)
2nd Gear									
254.35 (189.67)	35471 (157.78)	2.69 (4.32)	2117	9.1	0.490 (0.298)	14.37 (2.83)	188 (87)	54 (12)	28.78 (97.46)
3rd Gear									
270.73 (201.88)	33497 (149.00)	3.03 (4.88)	2101	6.6	0.461 (0.281)	15.25 (3.00)	190 (88)	56 (13)	28.78 (97.46)
4th Gear									
275.40 (205.37)	29893 (132.97)	3.46 (5.56)	2100	4.7	0.454 (0.276)	15.49 (3.05)	190 (88)	59 (15)	28.78 (97.46)
5th Gear									
277.60 (207.00)	27205 (121.01)	3.83 (6.16)	2100	4.3	0.451 (0.274)	15.61 (3.07)	199 (93)	69 (20)	28.73 (97.29)
6th Gear									
276.69 (206.33)	23980 (106.67)	4.33 (6.97)	2100	3.2	0.453 (0.276)	15.52 (3.06)	197 (92)	64 (18)	28.77 (97.43)
7th Gear									
279.64 (208.52)	21862 (97.25)	4.80 (7.72)	2101	2.9	0.448 (0.273)	15.70 (3.09)	202 (94)	66 (19)	28.76 (97.39)
8th Gear									
275.54 (205.47)	19300 (85.85)	5.35 (8.61)	2100	2.4	0.456 (0.277)	15.44 (3.04)	196 (91)	61 (16)	28.77 (97.43)
9th Gear									
273.92 (204.26)	17267 (76.81)	5.95 (9.58)	2100	2.2	0.456 (0.277)	15.44 (3.04)	200 (93)	62 (17)	28.78 (97.46)
10th Gear									
274.82 (204.93)	15583 (69.32)	6.61 (10.64)	2100	2.0	0.453 (0.276)	15.52 (3.06)	201 (94)	69 (21)	28.71 (97.22)
11th Gear									
272.53 (203.23)	13954 (62.07)	7.33 (11.79)	2101	1.8	0.456 (0.278)	15.41 (3.04)	203 (95)	69 (20)	28.69 (97.16)
12th Gear									
272.67 (203.33)	12521 (55.69)	8.17 (13.14)	2101	1.5	0.457 (0.278)	15.41 (3.03)	211 (99)	69 (21)	28.71 (97.22)

### TRACTOR SOUND LEVEL WITH CAB

	dB(A)
At no load in 6th gear	70.6
Transport speed-no load-18th gear	72.5
Bystander in 18th gear	83.5

### TIRES, BALLAST 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

Four 480/80R46;\*\*\*;12(85)

Four 480/80R46;\*\*\*;17(115)

21.0 in (535 mm)

15560 lb (7058 kg)

22145 lb(10045 kg)

37705 lb(17103 kg)

**Clutch** wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically actuated foot pedal **Steering** hydrostatic and articulated **Power take-off** 1000 rpm at 1895 engine rpm **Unladen tractor mass** 37530 lb (17023 kg)

**REPAIRS AND ADJUSTMENTS:** A leak was found in air intake system. Two pipes, part numbers RE316014 and RE322106 were replaced. Testing continued after repair.

**NOTE 1.** The engine on this model operates in a derated mode when the PTO is engaged. This run was done with the field cruise system engaged.

**NOTE 2.** During testing the engine was operated for 43.5 hours. During this period, the tractor experienced one active exhaust filter cleaning while operated in Auto Filter Cleaning Mode. This occurred after 16.0 hours of operation.

**NOTE 3:** 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 claim of 37 GPM (140 l/min) from a single outlet set. For the maximum power tests the fuel temperature at the primary fuel filter was maintained at 114°F (45°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. **2030**, Nebraska Summary 824, February 22, 2013.

Roger M. Hoy  
Director

M.R. Riley

P.J. Jasa

J.D. Luck

Board of Tractor Test Engineers

**DRAWBAR PERFORMANCE**  
**(Unballasted at 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)
1st Gear									
211.54 (157.74)	36133 (160.73)	2.20 (3.54)	2161	10.5	0.512 (0.312)	13.74 (2.71)	187 (86)	52 (11)	28.76 (97.39)
2nd Gear									
253.91 (189.34)	35402 (157.48)	2.69 (4.33)	2120	9.2	0.486 (0.295)	14.49 (2.85)	188 (87)	54 (12)	28.78 (97.46)
3rd Gear									
272.28 (203.19)	34665 (154.20)	2.95 (4.74)	2078	8.2	0.469 (0.286)	14.99 (2.95)	192 (89)	58 (14)	28.78 (97.46)
4th Gear									
290.36 (216.52)	33648 (149.67)	3.24 (5.21)	2012	6.9	0.454 (0.276)	15.51 (3.06)	196 (91)	59 (15)	28.77 (97.43)
5th Gear									
300.86 (224.35)	32676 (145.35)	3.45 (5.55)	1935	6.1	0.445 (0.271)	15.80 (3.11)	200 (93)	60 (15)	28.77 (97.43)
6th Gear									
304.29 (226.91)	31564 (140.40)	3.62 (5.82)	1800	5.6	0.448 (0.272)	15.71 (3.09)	211 (99)	60 (16)	28.76 (97.39)
7th Gear									
307.52 (229.31)	28632 (127.36)	4.03 (6.49)	1800	4.8	0.442 (0.269)	15.90 (3.13)	212 (100)	67 (19)	28.75 (97.36)
8th Gear									
310.04 (231.20)	25658 (114.13)	4.53 (7.29)	1800	3.5	0.439 (0.267)	16.03 (3.16)	211 (99)	60 (16)	28.79 (97.49)
9th Gear									
309.08 (230.48)	22945 (102.06)	5.06 (8.14)	1799	3.0	0.443 (0.269)	15.89 (3.13)	211 (99)	62 (17)	28.78 (97.46)
10th Gear									
309.53 (230.82)	20608 (91.67)	5.63 (9.06)	1801	2.7	0.440 (0.268)	15.97 (3.15)	213 (100)	69 (20)	28.70 (97.19)
11th Gear									
309.37 (230.70)	18556 (82.54)	6.26 (10.07)	1800	2.3	0.440 (0.267)	16.00 (3.15)	213 (100)	69 (21)	28.70 (97.19)
12th Gear									
310.58 (231.60)	16706 (74.31)	6.97 (11.22)	1800	2.1	0.438 (0.267)	16.05 (3.16)	213 (101)	69 (21)	28.70 (97.19)
13th Gear									
302.49 (225.56)	14662 (65.22)	7.74 (12.46)	1801	1.8	0.449 (0.273)	15.67 (3.09)	213 (101)	68 (20)	28.68 (97.12)
14th Gear									
302.75 (225.76)	13200 (58.71)	8.60 (13.84)	1800	1.7	0.448 (0.272)	15.71 (3.09)	213 (101)	67 (19)	28.65 (97.02)

## HYDRAULIC PERFORMANCE

CATEGORY: 4N/4

Quick Attach: Yes

OECD Static test

Maximum force exerted through whole range:

Category 4N      lift cylinders  
 15694 lbs(69.8 kN) (1 x 90 mm and 1x100 mm)  
 20935 lbs(93.1 kN) (2 x 110 mm)

Category 4  
 15959 lbs(71.0 kN) (1 x 90 mm and 1x100 mm)  
 21123 lbs(94.0 kN) (2 x 110 mm)

**18 Speed Powershift transmission**

**High flow pump      Base pump**

three outlet sets combined

i) Sustained pressure at compensator cutoff:	2888 psi (199 bar)	2915 psi (201 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	53.6 GPM (202.7 l/min)	32.1 GPM (121.5 l/min)
Combined flow:	85.7 GPM (324.2 l/min)	
iii) Pump delivery rate at maximum		
hydraulic power:	53.2 GPM (197.8 l/min)	31.9 GPM (120.7 l/min)
Delivery pressure:	2466 psi (170 bar)	2695 psi (186 bar)
Power:	75.2 HP (56.0 kW)	50.1 HP (37.4 kW)

single outlet set

i) Sustained pressure at compensator cutoff:	2889 psi (199 bar)	2910 psi (201 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	36.2 GPM (136.9 l/min)	31.8 GPM (120.2 l/min)
iii) Pump delivery rate at maximum		
hydraulic power:	33.1 GPM (125.2 l/min)	31.9 GPM (120.7 l/min)
Delivery pressure:	2235 psi (154 bar)	2403 psi (166 bar)
Power:	43.1 HP (32.2 kW)	44.7 HP (33.3 kW)

**24 speed manual shift transmission**

three outlet sets combined

i) Sustained pressure at compensator cutoff:	2921 psi (201 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	46.6 GPM (176.5 l/min)
iii) Pump delivery rate at maximum	
hydraulic power:	45.3 GPM (171.6 l/min)
Delivery pressure:	2602 psi (179 bar)
Power:	68.8 HP (51.3 kW)

single outlet set

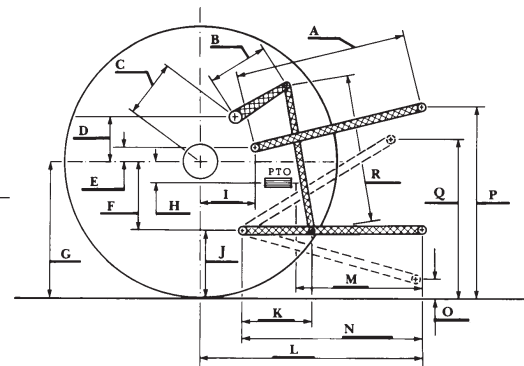
i) Sustained pressure at compensator cutoff:	2931 psi (202 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	36.2 GPM (136.9 l/min)
iii) Pump delivery rate at maximum	
hydraulic power:	35.4 GPM (133.9 l/min)
Delivery pressure:	2194 psi (151 bar)
Power:	45.3 HP (33.8 kW)

**Category 4N      Category 4**

	inch	mm	inch	mm
A	32.1	815	31.5	800
B	19.7	500	19.7	500
C	25.0	635	25.0	635
D	24.4	620	24.4	620
E	12.8	325	12.8	325
F	13.8	350	13.8	350
G	37.6	955	37.6	955
H	4.2	106	4.2	106
I	18.7	474	18.7	474
J	23.8	605	23.8	605
K	30.9	785	30.9	785
L	52.8	1342	52.8	1342
*L'	58.7	1491	59.6	1515
M	34.5	877	35.5	901
N	45.6	1159	45.6	1159
O	9.0	230	9.0	230
P	50.8	1290	50.8	1291
Q	39.4	1000	39.8	1010
R	48.2	1225	48.0	1220

\*L' to Quick Attach ends

**HITCH DIMENSIONS AS TESTED—NO LOAD**



**JOHN DEERE 9360R DIESEL**