

# NEBRASKA OECD TRACTOR TEST 1787-SUMMARY 340

## JOHN DEERE 7610 POWRQUAD DIESEL

### 20 SPEED

**Chassis serial number \*RW7610R030002\* and higher**

#### 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 1007 rpm)</b>					
120.63 (89.95)	2101	7.11 (26.90)	0.413 (0.251)	16.98 (3.34)	
<b>Maximum Power (2 hours)</b>					
126.83 (94.58)	1850	7.02 (26.56)	0.388 (0.236)	18.08 (3.56)	

#### VARYING POWER AND FUEL CONSUMPTION

120.63 (89.95)	2101	7.11 (26.90)	0.413 (0.251)	16.98 (3.34)	Air temperature
104.87 (78.20)	2150	6.50 (24.60)	0.435 (0.264)	16.14 (3.18)	76°F (25°C)
80.16 (59.78)	2184	5.52 (20.88)	0.483 (0.294)	14.53 (2.86)	Relative humidity
53.89 (40.18)	2212	4.49 (16.99)	0.585 (0.356)	12.00 (2.36)	55%
27.20 (20.28)	2250	3.04 (11.49)	0.783 (0.476)	8.96 (1.76)	Barometer
1.56 (1.16)	2277	2.09 (7.93)	9.435 (5.739)	0.74 (0.15)	28.83" Hg (97.63 kPa)

Maximum Torque - 420 lb.-ft. (569 Nm) at 1303 rpm

Maximum Torque Rise - 39.2%

Torque rise at 1700 engine rpm - 30%

#### 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>									
108.47 (80.88)	9016 (40.11)	4.51 (7.26)	2102	3.26	0.461 (0.281)	15.22 (3.00)	200 (93)	75 (24)	28.83 (97.63)
<b>75% of Pull at Maximum Power 7th(B3) Gear</b>									
84.64 (63.12)	6756 (30.05)	4.70 (7.56)	2167	2.49	0.502 (0.306)	13.97 (2.75)	196 (91)	77 (25)	28.81 (97.56)
<b>50% of Pull at Maximum Power 7th(B3)Gear</b>									
57.92 (43.19)	4507 (20.05)	4.82 (7.76)	2204	1.61	0.596 (0.362)	11.78 (2.32)	189 (87)	77 (25)	28.80 (97.53)
<b>75% of Pull at Reduced Engine Speed 10th(C2) Gear</b>									
84.72 (63.18)	6747 (30.01)	4.71 (7.58)	1637	2.40	0.442 (0.269)	15.87 (3.13)	191 (88)	77 (25)	28.80 (97.53)
<b>50% of Pull at Reduced Engine Speed 10th(C2) Gear</b>									
57.93 (43.20)	4500 (20.01)	4.83 (7.77)	1663	1.53	0.491 (0.298)	14.30 (2.82)	182 (83)	77 (25)	28.78 (97.46)

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

**Dates of Test:** October 26-November 7, 2000

**Manufacturer:** John Deere Waterloo Works, P.O. Box 270, Waterloo Ia, USA, 50704

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.8427 Fuel weight 7.017 lbs/gal (0.841 kg/l) Oil SAE 15W-40 API service classification CF-4 Transmission and hydraulic lubricant John Deere Hy-Gard fluid Front axle lubricant SAE 85W-140 API GL-5 Total time engine was operated: 28.5 hours

**ENGINE:** Make John Deere Diesel Type six cylinder vertical with turbocharger Serial No. \*T06068T856754\* Crankshaft lengthwise Rated engine speed 2100 Bore and stroke 4.19" x 5.00" (106.5 mm x 127.0 mm) Compression ratio 17.0 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 Muffler vertical Cooling medium temperature control 2 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: 48.5 - 51.6 lb/h (22.0 - 23.4 kg/h) High idle: 2250 - 2300 rpm Turbo boost: nominal 8.6 - 12.9 psi (59 - 89 kPa) as measured 12.6 psi (87 kPa)

**CHASSIS:** Type front wheel assist Serial No. \*RW7610H037883\* Tread width rear 60.0" (1524 mm) to 100.0 (2548 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) Wheelbase 110.2" (2800 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 1.50 (2.41) second 1.80 (2.90) third 2.16 (3.48) fourth 2.65 (4.26) fifth 3.18 (5.11) sixth 3.83 (6.16) seventh 4.58 (7.37) eighth 5.06 (8.14) ninth 5.61 (9.03) tenth 6.09 (9.80) eleventh 7.29 (11.73) twelfth 8.93 (14.37) thirteenth 9.36 (15.06) fourteenth 11.27 (18.14) fifteenth 13.50 (21.72) sixteenth 13.86 (22.31) seventeenth 16.54 (26.61) eighteenth 16.70 (26.87) nineteenth 20.00 (32.18) twentieth 24.50 (39.42) reverse 1.78 (2.86), 2.14 (3.44), 2.57 (4.13), 3.14 (5.05), 3.77 (6.06), 4.54 (7.30), 5.43 (8.74), 6.00 (9.65), 6.66 (10.71), 7.22 (11.62), 8.65 (13.92), 10.59 (17.05), 11.10 (17.86), 13.37 (21.51), 16.01 (25.76), 16.45 (26.47), 19.61 (31.56), 19.80 (31.87), 23.72 (38.17), 29.06 (46.76)

**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE ENGAGED**  
**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)		
4th(A4)Gear									
93.46 (69.69)	14933 (66.42)	2.35 (3.78)	2129	14.24	0.525 (0.319)	13.36 (2.63)	185 (85)	51 (11)	29.24 (99.02)
5th(B1)Gear									
107.74 (80.34)	14077 (62.62)	2.87 (4.62)	2040	8.74	0.466 (0.283)	15.07 (2.97)	188 (87)	54 (12)	29.24 (99.02)
6th(B2)Gear									
111.53 (83.17)	13112 (58.33)	3.19 (5.13)	1847	6.80	0.444 (0.270)	15.81 (3.11)	202 (94)	75 (24)	28.82 (97.60)
7th(B3)Gear									
114.01 (85.02)	10882 (48.41)	3.93 (6.32)	1850	4.36	0.433 (0.263)	16.20 (3.19)	203 (95)	75 (24)	28.82 (97.60)
8th(C1)Gear									
113.79 (84.86)	9779 (43.50)	4.36 (7.02)	1850	3.77	0.433 (0.264)	16.19 (3.19)	200 (93)	74 (23)	28.85 (97.70)
9th (B4)Gear									
113.05 (84.30)	8682 (38.62)	4.88 (7.86)	1853	3.01	0.438 (0.266)	16.02 (3.16)	202 (94)	73 (23)	28.83 (97.63)
10th(C2) Gear									
113.48 (84.62)	8022 (35.68)	5.31 (8.54)	1850	2.84	0.437 (0.266)	16.06 (3.16)	201 (94)	72 (22)	28.83 (97.63)
11th(C3)Gear									
113.08 (84.32)	6669 (29.66)	6.36 (10.23)	1844	2.32	0.436 (0.265)	16.08 (3.17)	202 (94)	75 (24)	28.82 (97.60)
12th(C4) Gear									
110.35 (82.29)	5292 (23.54)	7.82 (12.59)	1840	1.88	0.449 (0.273)	15.63 (3.08)	204 (96)	76 (24)	28.82 (97.60)
13th(D1) Gear									
110.42 (82.34)	5019 (22.33)	8.25 (13.28)	1850	1.79	0.450 (0.274)	15.60 (3.07)	203 (95)	76 (24)	28.82 (97.60)

**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 2072 engine rpm or 1000 rpm at 2086 engine rpm **Unladen tractor mass** 14540 lb (6595 kg)

**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 138°F(59°C). This tractor did not meet the manufacturer's claim of 41% torque rise. The pull in 3<sup>rd</sup>(A3) gear(ballasted tractor) was limited to avoid excessive tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

**NOTE:** The performance figures on this report apply to tractor chassis serial numbers \*RW7610R030002\* and higher.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1787**, Nebraska Summary 340, December 14, 2000.

David L. Morgan  
Assistant Director

L.L. Bashford  
M.F. Kocher  
R.D. Grisso, Jr.  
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	71.4	71.2
Transport speed - no load - 20th(E4)gear		74.7
Bystander in 20th(E4) Gear		82.7

**TIRES, BALLAST AND WEIGHT**

	With Ballast	Without Ballast
<b>Rear Tires</b> - No., size, ply & psi(kPa)	Four 18.4R42;**,8(55)	Two 18.4R42;**,16(110)
<b>Ballast</b> - Duals (total)	1570 lb (712 kg)	None
- Cast Iron (total)	None	None
<b>Front Tires</b> - No., size, ply & psi(kPa)	Two 14.9R30;***,18(125)	Two 14.9R30;***,16(110)
<b>Ballast</b> - Liquid (total)	None	None
- Cast Iron (total)	540 lb (245 kg)	None
<b>Height of Drawbar</b>	24.5 in (625 mm)	22.0 in (560 mm)
<b>Static Weight with operator</b> - Rear	11235 lb (5096 kg)	9725 lb (4411 kg)
- Front	5590 lb (2536 kg)	4990 lb (2263 kg)
- Total	16825 lb (7632 kg)	14715 lb (6674 kg)

**DRAWBAR PERFORMANCE**  
**BALLASTED - FRONT DRIVE ENGAGED(1850 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)
3rd(A3)Gear									
94.92 (70.78)	17738 (78.90)	2.01 (3.23)	2132	9.85	0.499 (0.303)	14.07 (2.77)	186 (85)	46 (8)	29.05 (98.37)
4th(A4)Gear									
107.87 (80.44)	16929 (75.30)	2.39 (3.85)	2014	7.03	0.463 (0.282)	15.15 (2.98)	193 (89)	48 (9)	29.05 (98.37)
5th(B1)Gear									
114.34 (85.26)	15999 (71.17)	2.68 (4.31)	1850	5.83	0.436 (0.265)	16.11 (3.17)	194 (90)	55 (13)	29.03 (98.31)
6th(B2)Gear									
115.86 (86.40)	13180 (58.63)	3.30 (5.31)	1850	3.52	0.428 (0.260)	16.39 (3.23)	199 (93)	56 (13)	29.03 (98.31)
7th(B3)Gear									
116.63 (86.97)	10989 (48.88)	3.98 (6.41)	1849	2.84	0.425 (0.259)	16.50 (3.25)	200 (93)	57 (14)	29.03 (98.31)
8th(C1)Gear									
115.56 (86.17)	9835 (43.75)	4.41 (7.09)	1849	2.49	0.429 (0.261)	16.36 (3.22)	201 (94)	58 (14)	29.02 (98.27)
9th(B4)Gear									
114.07 (85.06)	8699 (38.70)	4.92 (7.91)	1854	2.23	0.432 (0.263)	16.23 (3.20)	200 (93)	59 (15)	29.01 (98.24)
10th(C2)Gear									
114.63 (85.48)	8064 (35.87)	5.33 (8.58)	1850	2.06	0.432 (0.263)	16.24 (3.20)	201 (94)	59 (15)	29.00 (98.21)
11th(C3)Gear									
113.75 (84.83)	6667 (29.65)	6.40 (10.30)	1847	1.62	0.434 (0.264)	16.18 (3.19)	199 (93)	60 (16)	29.00 (98.21)
12th(C4)Gear									
109.41 (81.59)	5205 (23.15)	7.88 (12.69)	1851	1.45	0.453 (0.275)	15.50 (3.05)	199 (93)	61 (16)	28.99 (98.17)
13th(D1)Gear									
109.47 (81.63)	4974 (22.13)	8.25 (13.28)	1848	1.18	0.454 (0.276)	15.46 (3.05)	200 (93)	62 (17)	28.97 (98.10)

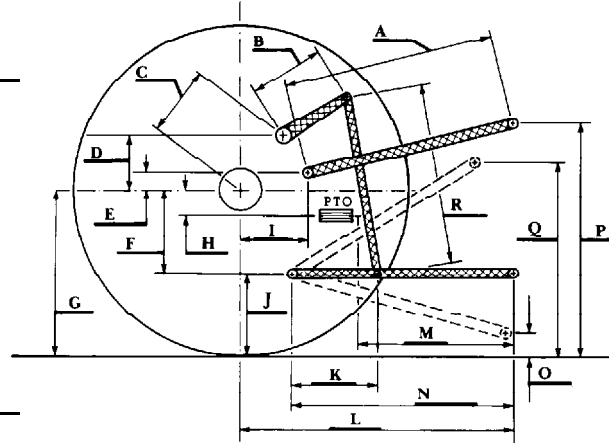
**DRAWBAR PERFORMANCE**  
**BALLASTED - FRONT DRIVE DISENGAGED**  
**FUEL CONSUMPTION CHARACTERISTICS**

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>									
109.21 (81.44)	9058 (40.29)	4.52 (7.28)	2098	2.49	0.457 (0.278)	15.36 (3.03)	198 (92)	56 (13)	29.14 (98.68)
<b>75% of Pull at Maximum Power 7th(B3) Gear</b>									
84.88 (63.29)	6788 (30.19)	4.69 (7.55)	2165	1.97	0.503 (0.306)	13.95 (2.75)	191 (88)	63 (17)	28.96 (98.07)
<b>50% of Pull at Maximum Power 7th(B3)Gear</b>									
57.68 (43.01)	4522 (20.11)	4.78 (7.70)	2197	1.27	0.601 (0.366)	11.67 (2.30)	187 (86)	63 (17)	28.94 (98.00)
<b>75% of Pull at Reduced Engine Speed 10th(C2) Gear</b>									
84.66 (63.13)	6786 (30.18)	4.68 (7.53)	1626	1.97	0.444 (0.270)	15.82 (3.12)	187 (86)	63 (17)	28.95 (98.04)
<b>50% of Pull at Reduced Engine Speed 10th(C2) Gear</b>									
57.67 (43.00)	4523 (20.12)	4.78 (7.69)	1651	1.36	0.495 (0.301)	14.19 (2.79)	180 (82)	65 (18)	28.91 (97.90)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
<b>4th(A4) Gear</b>									
95.78 (71.43)	15715 (69.90)	2.29 (3.68)	2095	14.46	0.520 (0.317)	13.48 (2.66)	192 (89)	50 (10)	29.05 (98.37)
<b>5th(B1) Gear</b>									
108.86 (81.18)	13256 (58.96)	3.08 (4.96)	2100	4.36	0.459 (0.279)	15.30 (3.01)	194 (90)	52 (11)	29.15 (98.71)
<b>6th(B2) Gear</b>									
109.72 (81.81)	10962 (48.76)	3.75 (6.04)	2098	3.10	0.455 (0.277)	15.42 (3.04)	197 (92)	54 (12)	29.14 (98.68)
<b>7th(B3) Gear</b>									
109.21 (81.44)	9058 (40.29)	4.52 (7.28)	2098	2.49	0.457 (0.278)	15.36 (3.03)	198 (92)	56 (13)	29.14 (98.68)
<b>8th(C1) Gear</b>									
108.86 (81.18)	8159 (36.29)	5.00 (8.05)	2099	2.24	0.459 (0.279)	15.30 (3.01)	197 (91)	58 (14)	29.14 (98.68)
<b>9th(B4) Gear</b>									
106.85 (79.68)	7201 (32.03)	5.56 (8.96)	2097	1.97	0.467 (0.284)	15.01 (2.96)	198 (92)	57 (14)	29.17 (98.78)
<b>10th(C2) Gear</b>									
106.83 (79.66)	6627 (29.48)	6.05 (9.73)	2098	1.80	0.466 (0.284)	15.05 (2.97)	195 (91)	59 (15)	29.16 (98.75)
<b>11th(C3) Gear</b>									
105.32 (78.54)	5442 (24.21)	7.26 (11.68)	2095	1.62	0.473 (0.288)	14.84 (2.92)	197 (92)	58 (14)	29.16 (98.75)
<b>12th(C4) Gear</b>									
100.55 (74.98)	4223 (18.78)	8.93 (14.37)	2097	1.27	0.497 (0.302)	14.12 (2.78)	197 (92)	58 (14)	29.16 (98.75)

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: Walterscheid lower link ends	lift cylinders 2 x 80 mm
Maximum Force Exerted Through Whole Range:	10161 lbs (45.2 kN)
i) Opening pressure of relief valve:	NA
Sustained pressure at compensator cutoff:	2880 psi (199 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	26.3 GPM(99.6 l/min)
iii) Pump delivery rate at maximum hydraulic power:	25.2 GPM(95.4 l/min)
Delivery pressure:	2400 psi (166 bar)
Power:	35.3 HP (26.3 kW)



HITCH DIMENSIONS AS TESTED NO LOAD

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. (bar)	2950 (203)				
Location:	lift cylinders				
Hydraulic oil temperature: °F (°C)	144 (62)				
Location:	hydraulic sump				
Category:	IHN				
Quick attach:	No				
<b>SAE Static Test</b> System pressure 2650 psi (182 Bar) with lift cylinders (2)x 70 mm					
Hitch point distance to ground level in. (mm)	7.9 (201)	16.0 (406)	24.0 (610)	32.0 (813)	40.0 (1016)
Lift force on frame lb	9630	9558	9261	8595	7245
" " " " " " (kN)	(42.8)	(42.5)	(41.2)	(38.2)	(32.2)
with lift cylinders (1) x 70 mm and (1) x 80 mm					
Hitch point distance to ground level in. (mm)	8.1 (206)	16.0 (406)	24.0 (610)	32.0 (813)	40.0 (1016)
Lift force on frame lb	10953	10944	10629	9855	8397
" " " " " " (kN)	(48.7)	(48.7)	(47.3)	(43.8)	(37.4)
with lift cylinders (2) x 80 mm					
Hitch point distance to ground level in. (mm)	7.7 (196)	16.0 (406)	24.0 (610)	32.0 (813)	40.0 (1016)
Lift force on frame lb	12177	12564	12177	11268	9549
" " " " " " (kN)	(54.2)	(55.9)	(54.2)	(50.1)	(42.5)
<b>ASAE Static Test</b> System pressure 2860 psi (197 Bar) with lift cylinders (2)x 70 mm					
Hitch point distance to ground level in. (mm)	7.9 (201)	16.0 (406)	24.0 (610)	32.0 (813)	40.0 (1016)
Lift force on frame lb	10514	10436	10111	9384	7910
" " " " " " (kN)	(53.5)	(52.0)	(52.2)	(51.0)	(46.8)
with lift cylinders (1) x 70 mm and (1) x 80 mm					
Hitch point distance to ground level in. (mm)	8.1 (206)	16.0 (406)	24.0 (610)	32.0 (813)	40.0 (1016)
Lift force on frame lb	11959	11949	11605	10760	9168
" " " " " " (kN)	(53.2)	(53.2)	(51.6)	(47.9)	(40.8)
with lift cylinders (1) x 70 mm and (1) x 80 mm					
Hitch point distance to ground level in. (mm)	7.7 (196)	16.0 (406)	24.0 (610)	32.0 (813)	40.0 (1016)
Lift force on frame lb	13295	13718	13295	12303	10426
" " " " " " (kN)	(59.1)	(61.0)	(59.1)	(54.7)	(46.4)

	OECD test		SAE test	
	inch	mm	inch	mm
A	27.2	692	26.6	676
B	14.8	375	14.8	375
C	24.5	623	24.5	623
D	23.1	588	23.1	588
E	11.1	283	7.5	190
F	10.8	275	10.8	275
G	35.6	905	34.2	870
H	4.1	105	4.1	105
I	19.8	504	19.8	504
J	24.8	630	23.4	595
K	24.1	612	23.1	587
L	47.5	1206	46.4	1179
M	23.1	586	22.0	559
N	39.8	1011	38.7	984
O	9.0	229	8.0	203
P	51.8	1315	45.4	1153
Q	38.8	984	36.8	933
R	38.1	968	35.9	911



JOHN DEERE 7610 DIESEL