

NEBRASKA OECD TRACTOR TEST 1894—SUMMARY 561

JOHN DEERE 7730 AUTOQUAD-PLUS DIESEL

20 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1075 rpm)					
153.29 (114.31)	2100	9.00 (34.08)	0.412 (0.250)	17.03 (3.35)	
Standard Power Take-off Speed (1000 rpm)					
168.19 (125.42)	1954	9.48 (35.88)	0.395 (0.240)	17.75 (3.50)	
Maximum Power (1 hour)					
172.51 (128.64)	1900	9.60 (36.33)	0.390 (0.237)	17.98 (3.54)	

VARYING POWER AND FUEL CONSUMPTION

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
153.29 (114.31)	2100	9.00 (34.08)	0.412 (0.250)	17.03 (3.35)	Air temperature
133.95 (99.89)	2156	8.14 (30.83)	0.426 (0.259)	16.45 (3.24)	77°F (25°C)
100.83 (75.19)	2166	6.69 (25.32)	0.465 (0.283)	15.07 (2.97)	Relative humidity
67.18 (50.10)	2176	5.23 (19.82)	0.546 (0.332)	12.83 (2.53)	59%
33.94 (25.31)	2188	3.71 (14.04)	0.766 (0.466)	9.15 (1.80)	Barometer
1.02 (0.76)	2197	2.60 (9.83)	17.888 (10.881)	0.39 (0.08)	28.57" Hg (96.75 kPa)

Maximum torque - 564 lb.-ft. (764 Nm) at 1600 rpm

Maximum torque rise - 47.1%

Torque rise at 1698 engine rpm - 38%

Power increase at 1900 engine rpm - 12.5%

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—7th (B3) Gear									
139.10 (103.73)	11790 (52.45)	4.42 (7.12)	2099	4.12	0.467 (0.284)	15.02 (2.96)	200 (93)	73 (23)	28.73 (97.29)
75% of Pull at Maximum Power—7th (B3) Gear									
109.04 (81.31)	8852 (39.38)	4.62 (7.43)	2160	2.90	0.501 (0.305)	13.98 (2.75)	188 (87)	65 (18)	28.77 (97.43)
50% of Pull at Maximum Power—7th (B3) Gear									
73.68 (54.94)	5900 (26.25)	4.68 (7.54)	2171	1.92	0.581 (0.353)	12.08 (2.38)	186 (86)	66 (19)	28.78 (97.46)
75% of Pull at Reduced Engine Speed—10th (C2) Gear									
109.36 (81.55)	8855 (39.39)	4.63 (7.45)	1632	2.95	0.461 (0.280)	15.22 (3.00)	186 (86)	68 (20)	28.79 (97.49)
50% of Pull at Reduced Engine Speed—10th (C2) Gear									
73.82 (55.05)	5917 (26.32)	4.68 (7.53)	1633	2.00	0.525 (0.320)	13.34 (2.63)	177 (81)	67 (19)	28.78 (97.46)

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

Dates of tests: March 21-April 9, 2007

Manufacturer: John Deere Tractor Works, 3500 East Donald Street, 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) 0.8421 Fuel weight 7.011 lbs/gal (0.840 kg/l) Oil SAE 15W-40 API service classification CF-4 Transmission and hydraulic lubricant John Deere Hy-Gard fluid Front axle lubricant John Deere Hy-Gard fluid Total time engine was operated: 36.5 hours

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** *PE6068L004157* **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 (6784 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: 58.0 - 64.2 lb/h (26.3 - 29.1 kg/h) **High idle:** 2175 - 2225 rpm **Turbo boost:** nominal 19.6-22.5 psi (135-155 kPa) as measured 21.0 psi (144 kPa)

CHASSIS: Type front wheel assist **Serial No.** *RW7730A002158* **Tread width** rear 60.0" (1524 mm) to 117.5" (2984 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) **Wheelbase** 112.5" (2860 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 1.57 (2.52), 1.88 (3.03), 2.26 (3.63), 2.77 (4.45), 3.31 (5.33), 3.99 (6.42), 4.78 (7.69), 5.28 (8.49), 5.85 (9.42), 6.35 (10.22), 7.61 (12.24), 9.32 (15.00), 9.77 (15.72), 11.76 (18.92), 14.09 (22.67), 14.47 (23.28), 17.26 (27.77), 17.42 (28.04), 20.87 (33.58), 25.56 (41.13)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED - 1900 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)	
4th(A4)Gear									
101.82 (75.93)	16167 (71.91)	2.36 (3.80)	2156	13.74	0.557 (0.339)	12.58 (2.48)	184 (84)	60 (16)	28.74 (97.32)
5th(B1)Gear									
123.50 (92.09)	15632 (69.54)	2.96 (4.77)	2155	10.07	0.499 (0.304)	14.05 (2.77)	190 (88)	63 (17)	28.76 (97.39)
6th(B2)Gear									
139.47 (104.00)	14980 (66.64)	3.49 (5.62)	2060	7.63	0.469 (0.286)	14.94 (2.94)	199 (93)	64 (18)	28.76 (97.39)
7th(B3) Gear									
150.58 (112.29)	14140 (62.90)	3.99 (6.43)	1936	6.14	0.451 (0.274)	15.55 (3.06)	203 (95)	75 (24)	28.74 (97.33)
8th(C1)Gear									
151.39 (112.89)	12996 (57.81)	4.37 (7.03)	1899	5.20	0.448 (0.273)	15.64 (3.08)	205 (96)	75 (24)	28.74 (97.33)
9th(B4) Gear									
152.68 (113.85)	11636 (51.76)	4.92 (7.92)	1902	4.01	0.443 (0.269)	15.83 (3.12)	203 (95)	71 (22)	28.73 (97.29)
10th(C2) Gear									
152.44 (113.68)	10655 (47.39)	5.37 (8.63)	1903	3.51	0.448 (0.273)	15.64 (3.08)	204 (95)	75 (24)	28.74 (97.33)
11th(C3)Gear									
152.48 (113.70)	8855 (39.39)	6.46 (10.39)	1901	2.87	0.446 (0.271)	15.73 (3.10)	203 (95)	76 (24)	28.75 (97.36)
12th(C4) Gear									
148.04 (110.39)	6932 (30.84)	8.01 (12.89)	1908	2.08	0.461 (0.280)	15.22 (3.00)	203 (95)	76 (24)	28.75 (97.36)

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 1950 engine rpm or 1000 rpm at 1950 engine rpm **Unladen tractor mass** 17125 lb (7768 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 128°F (53°C). This tractor did not meet the manufacturer's initial advertised claim of 13% power bulge. The pull in 3rd (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.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1894**, Nebraska Summary 561, July 30, 2007.

Roger M. Hoy
 Director

M.F. Kocher
 V.I. Adamchuk
 J.A. Smith
 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	68.2	68.0
Transport speed - no load - 20th (E4) gear		71.6
Bystander in 20th (E4) gear		83.2

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires - No., size, ply & psi(kPa)	Four 480/80R42;***;10(70)	Two 480/80R42;***;17(115)
Ballast - Duals (total)	1570 lb (712 kg)	None
- Cast Iron (total)	1710 lb (776 kg)	None
Front Tires - No., size, ply & psi(kPa)	Two 380/85R30;***;20(140)	Two 380/85R30;***;15(105)
Ballast - Liquid (total)	None	None
- Cast Iron (total)	920 lb (417 kg)	None
Height of Drawbar	17.5 in (445 mm)	17.5 in (445 mm)
Static Weight with operator - Rear	13930 lb (6318 kg)	11070 lb (5021 kg)
- Front	7570 lb (3434 kg)	6230 lb (2826 kg)
- Total	21500 lb (9752 kg)	17300 lb (7847 kg)

DRAWBAR PERFORMANCE
BALLASTED - FRONT DRIVE ENGAGED - 1900 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(A3)Gear									
110.77 (82.60)	20547 (91.40)	2.02 (3.25)	2155	9.46	0.516 (0.314)	13.60 (2.68)	178 (81)	43 (6)	28.86 (97.73)
4th(A4)Gear									
130.26 (97.13)	19890 (88.47)	2.46 (3.95)	2098	7.73	0.493 (0.300)	14.23 (2.80)	184 (85)	43 (6)	28.87 (97.77)
5th(B1)Gear									
145.67 (108.62)	19260 (85.67)	2.84 (4.56)	1997	6.66	0.456 (0.278)	15.36 (3.03)	189 (87)	44 (7)	28.88 (97.80)
6th(B2)Gear									
154.20 (114.98)	17438 (77.57)	3.32 (5.34)	1902	4.84	0.441 (0.268)	15.91 (3.13)	197 (92)	45 (7)	28.89 (97.83)
7th(B3)Gear									
156.69 (116.85)	14608 (64.98)	4.02 (6.47)	1900	3.50	0.431 (0.262)	16.26 (3.20)	199 (93)	45 (7)	28.91 (97.90)
8th(C1)Gear									
155.89 (116.25)	13096 (58.25)	4.46 (7.18)	1902	3.20	0.434 (0.264)	16.15 (3.18)	201 (94)	45 (7)	28.94 (98.00)
9th(B4)Gear									
153.28 (114.30)	11564 (51.44)	4.97 (8.00)	1900	2.90	0.439 (0.267)	15.99 (3.15)	202 (94)	45 (7)	28.93 (97.97)
10th(C2)Gear									
153.75 (114.65)	10690 (47.55)	5.39 (8.68)	1898	2.53	0.439 (0.267)	15.97 (3.15)	201 (94)	45 (7)	28.95 (98.04)
11th(C3)Gear									
153.28 (114.30)	8855 (39.39)	6.49 (10.45)	1899	2.13	0.441 (0.268)	15.91 (3.13)	201 (94)	45 (7)	28.97 (98.10)
12th(C4)Gear									
146.71 (109.40)	6866 (30.54)	8.01 (12.89)	1904	1.70	0.462 (0.281)	15.18 (2.99)	202 (94)	45 (7)	28.98 (98.14)

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)	Temp. ^o F (°C) cool- ing med	Temp. ^o F (°C) Air dry bulb	Barom. inch Hg (kPa)	
Maximum Power—7th (B3) Gear									
139.80 (104.25)	11875 (52.82)	4.41 (7.10)	2098	3.43	0.457 (0.278)	15.34 (3.02)	193 (89)	45 (7)	28.90 (97.87)
75% of Pull at Maximum Power—7th(B3) Gear									
109.16 (81.40)	8915 (39.66)	4.59 (7.39)	2157	2.31	0.498 (0.303)	14.08 (2.77)	178 (81)	45 (7)	28.98 (98.14)
50% of Pull at Maximum Power—7th (B3) Gear									
73.65 (54.92)	5939 (26.42)	4.65 (7.48)	2169	1.63	0.591 (0.359)	11.87 (2.34)	173 (78)	45 (7)	28.99 (98.17)
75% of Pull at Reduced Engine Speed—10th(C2) Gear									
108.94 (81.24)	8946 (39.79)	4.57 (7.35)	1615	2.33	0.450 (0.273)	15.59 (3.07)	176 (80)	45 (7)	29.00 (98.21)
50% of Pull at Reduced Engine Speed—10th(C2) Gear									
73.48 (54.80)	5938 (26.41)	4.64 (7.47)	1629	1.60	0.527 (0.321)	13.31 (2.62)	173 (78)	45 (7)	28.99 (98.17)
MAXIMUM POWER IN SELECTED GEARS									
5th(B1) Gear									
123.77 (92.30)	16420 (73.04)	2.83 (4.55)	2144	12.82	0.514 (0.313)	13.64 (2.69)	184 (84)	44 (7)	28.87 (97.77)
6th(B2) Gear									
136.81 (102.02)	14134 (62.87)	3.63 (5.84)	2102	5.08	0.470 (0.286)	14.93 (2.94)	188 (86)	45 (7)	28.89 (97.83)
7th(B3) Gear									
139.80 (104.25)	11875 (52.82)	4.41 (7.10)	2098	3.43	0.457 (0.278)	15.34 (3.02)	193 (89)	45 (7)	28.90 (97.87)
8th(C1) Gear									
139.26 (103.84)	10660 (47.42)	4.90 (7.88)	2099	2.93	0.455 (0.277)	15.40 (3.03)	193 (90)	45 (7)	28.93 (97.97)
9th(B4) Gear									
136.15 (101.53)	9337 (41.53)	5.47 (8.80)	2101	2.49	0.465 (0.283)	15.09 (2.97)	197 (91)	45 (7)	28.92 (97.93)
10th(C2) Gear									
136.94 (102.12)	8652 (38.48)	5.94 (9.55)	2099	2.30	0.463 (0.281)	15.16 (2.99)	198 (92)	45 (7)	28.94 (98.00)
11th(C3) Gear									
136.02 (101.43)	7149 (31.80)	7.13 (11.48)	2098	1.92	0.474 (0.288)	14.79 (2.91)	197 (92)	45 (7)	28.96 (98.07)
12th(C4) Gear									
131.80 (98.29)	5633 (25.06)	8.77 (14.12)	2098	1.53	0.475 (0.289)	14.75 (2.91)	195 (91)	45 (7)	28.97 (98.10)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: Yes

Lift cylinders:

Maximum force exerted through whole range: $2 \times 90 \text{ mm}$ $2 \times 100 \text{ mm}$
 10987 lbs (48.9 kN) 15574 lbs (69.3 kN)

45 cc pump 63 cc pump

i) Sustained pressure at compensator cutoff: 2914 psi (201 bar) 2895 psi (200 bar)

three outlet sets combined

ii) Pump delivery rate at minimum pressure and rated engine speed: 32.0 GPM (121.1 l/min) 45.0 GPM (170.3 l/min)

iii) Pump delivery rate at maximum hydraulic power: 31.3 GPM (118.5 l/min) 43.6 GPM (165.0 l/min)

Delivery pressure: 2567 psi (177 bar) 2591 psi (179 bar)

Power: 46.9 HP (35.0 kW) 65.9 HP (49.1 kW)

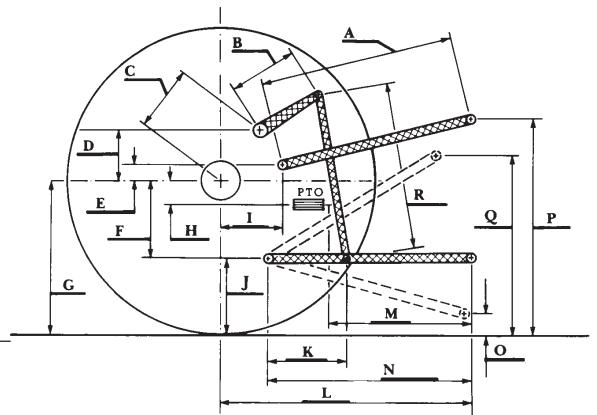
single outlet set

ii) Pump delivery rate at minimum pressure and rated engine speed: 31.4 GPM (118.9 l/min) 41.4 GPM (156.7 l/min)

iii) Pump delivery rate at maximum hydraulic power: 31.0 GPM (117.3 l/min) 38.4 GPM (145.4 l/min)

Delivery pressure: 2265 psi (156 bar) 1921 psi (132 bar)

Power: 41.0 HP (30.5 kW) 43.0 HP (32.1 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	mm	inch	mm
A	29.6	752	26.4	670
B	16.7	425	16.7	425
C	25.6	650	25.6	650
D	23.9	608	23.9	608
E	11.1	283	7.5	190
F	12.7	323	12.7	323
G	35.6	905	35.6	905
H	4.7	120	4.7	120
I	20.9	530	20.6	523
J	22.9	582	22.9	582
K	28.1	713	27.8	706
L	51.2	1300	47.4	1204
*L'	--	--	50.9	1293
M	24.7	628	20.9	532
N	44.1	1120	40.3	1024
O	9.0	230	8.0	203
P	50.2	1275	45.2	1149
Q	40.4	1025	37.6	954
R	38.4	975	39.8	1010

*L' to Quick Attach ends

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. (bar)	2910 (201)				
Location:	lift cylinders				
Hydraulic oil temperature: °F (°C)	144 (62)				
Location:	hydraulic sump				
Category:	III				
Quick attach:	Yes				
SAE Static Test—System pressure 2610 psi (180 Bar)					
with lift cylinders 2 x 90 mm					
Hitch point distance to ground level in. (mm)	7.9 (201)	16.0 (406)	23.9 (607)	31.8 (807)	40.0 (1015)
Lift force on frame lb	13290	13349	13110	12120	10573
" " " " " " (kN)	(59.1)	(59.4)	(58.3)	(53.9)	(47.0)
with lift cylinders 2 x 100 mm					
Hitch point distance to ground level in. (mm)	7.9 (201)	16.1 (409)	24.0 (609)	31.9 (810)	40.0 (1017)
Lift force on frame lb	18660	18544	17958	16558	14432
" " " " " " (kN)	(83.0)	(82.5)	(79.9)	(73.7)	(64.2)



JOHN DEERE 7730 DIESEL

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