NEBRASKA OECD TRACTOR TEST 1778–SUMMARY 313
JOHN DEERE 8410T DIESEL
16 SPEED

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

Dates of Test: April 7-27, 2000

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

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.8487 **Fuel weight** 7.067 lbs/gal *(0.847 kg/l)* **Oil SAE** 15W-40 **API service classification** CF-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Total time engine was operated:** 32.5 hours

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger and air to air aftercooler **Serial No.** *RG6081H098907* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.56" x 5.06"*(115.8 mm x 128.5 mm)* **Compression ratio** 16.5 to 1 **Displacement** 496 cu in *(8134 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 **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 93.0 - 100.4 lb/h *(42.2 - 45.6 kg/h)* **High idle:** 2275 - 2325 rpm **Turbo boost:** nominal 20.9 - 25.2 psi *(144 - 174 kPa)* as measured 25.1 psi *(173 kPa)*

CHASSIS: Type tracklayer-rubber tracked **Serial No.***RW8410T901086* **Track width** 88.0" *(2235 mm)* to 119.5 *(3035 mm)* **Length of track on ground** 89.0" *(2261 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 1.16 *(1.87)* second 1.49 *(2.39)* third 1.89 *(3.04)* fourth 2.41 *(3.88)* fifth 2.92*(4.70)* sixth 3.30 *(5.31)* seventh 3.73*(6.01)* eighth 4.21*(6.78)* ninth 4.75*(7.65)* tenth 5.36 *(8.63)* eleventh 6.07 *(9.77)* twelfth 6.85*(11.02)* thirteenth 8.71 *(14.02)* fourteenth 11.13*(17.91)* fifteenth 14.17*(22.80)* sixteenth 18.10*(29.13)* reverse 1.01 *(1.63)*, 2.55 *(4.10)*, 2.88 *(4.63)*, 5.53 *(8.90)*@1600 engine rpm **Clutch** wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically actuated foot pedal **Steering** electro-hydraulic differential steering controlled by steering wheel **Power take-off** 1000 rpm at 2179 engine rpm **Unladen tractor mass** 26380 lb *(11965 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 1009 rpm)					
236.75 *(176.54)*	2200	13.66 *(51.70)*	0.408 *(0.248)*	17.33 *(3.41)*	
Maximum Power (2 hours)					
270.62 *(201.80)*	2000	14.60 *(55.25)*	0.381 *(0.232)*	18.54 *(3.65)*	
VARYING POWER AND FUEL CONSUMPTION					
236.75 *(176.54)*	2200	13.66 *(51.70)*	0.408 *(0.248)*	17.33 *(3.41)*	Air temperature
206.22 *(153.78)*	2254	12.40 *(46.92)*	0.425 *(0.258)*	16.64 *(3.28)*	74°F *(24°C)*
155.19 *(115.73)*	2264	9.89 *(37.44)*	0.450 *(0.274)*	15.69 *(3.09)*	Relative humidity
104.46 *(77.89)*	2275	7.60 *(28.76)*	0.514 *(0.313)*	13.75 *(2.71)*	43%
51.93 *(38.72)*	2285	5.14 *(19.44)*	0.699 *(0.425)*	10.11 *(1.99)*	Barometer
2.50 *(1.87)*	2293	3.06 *(11.57)*	8.627 *(5.248)*	0.82 *(0.16)*	28.92" Hg *(97.93 kPa)*

Maximum Torque - 844 lb.-ft. *(1144 Nm)* at 1400 rpm
Maximum Torque Rise - 49.3%
Torque rise at 1798 engine rpm - 36%

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)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power 10th Gear									
205.84 *(153.50)*	14723 *(65.49)*	5.24 *(8.44)*	2201	2.05	0.471 *(0.286)*	15.01 *(2.96)*	198 *(92)*	56 *(13)*	29.22 *(98.95)*
75% of Pull at Maximum Power 10th Gear									
159.65 *(119.05)*	11027 *(49.05)*	5.43 *(8.74)*	2260	1.27	0.505 *(0.307)*	14.01 *(2.76)*	195 *(91)*	60 *(16)*	29.16 *(98.75)*
50% of Pull at Maximum Power 10th Gear									
107.62 *(80.25)*	7361 *(32.74)*	5.48 *(8.82)*	2271	0.72	0.581 *(0.353)*	12.16 *(2.40)*	187 *(86)*	63 *(17)*	29.12 *(98.61)*
75% of Pull at Reduced Engine Speed 12th Gear									
159.67 *(119.07)*	11001 *(48.93)*	5.44 *(8.76)*	1774	1.12	0.446 *(0.272)*	15.83 *(3.12)*	191 *(88)*	61 *(16)*	29.15 *(98.71)*
50% of Pull at Reduced Engine Speed 12th Gear									
107.62 *(80.25)*	7353 *(32.71)*	5.49 *(8.83)*	1780	0.72	0.498 *(0.303)*	14.19 *(2.79)*	187 *(86)*	63 *(17)*	29.12 *(98.61)*

DRAWBAR PERFORMANCE(Unballasted)

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)*
				3rd Gear					
117.32 *(87.48)*	27233 *(121.14)*	1.62 *(2.60)*	2200	14.29	0.586 *(0.356)*	12.06 *(2.38)*	181 *(83)*	48 *(9)*	28.95 *(98.04)*
				4th Gear					
133.29 *(99.39)*	23421 *(104.18)*	2.13 *(3.43)*	2135	8.64	0.528 *(0.321)*	13.40 *(2.64)*	183 *(84)*	50 *(10)*	29.30 *(99.22)*
				5th Gear					
159.89 *(119.23)*	23124 *(102.86)*	2.59 *(4.17)*	2126	8.04	0.500 *(0.304)*	14.13 *(2.78)*	185 *(85)*	51 *(11)*	29.29 *(99.19)*
				6th Gear					
180.16 *(134.34)*	22981 *(102.22)*	2.94 *(4.73)*	2126	7.56	0.487 *(0.296)*	14.52 *(2.86)*	190 *(88)*	52 *(11)*	29.28 *(99.15)*
				7th Gear					
206.85 *(154.25)*	23133 *(102.90)*	3.35 *(5.40)*	2147	7.84	0.483 *(0.294)*	14.64 *(2.88)*	195 *(91)*	52 *(11)*	29.27 *(99.12)*
				8th Gear					
221.77 *(165.38)*	23039 *(102.48)*	3.61 *(5.81)*	2046	7.77	0.467 *(0.284)*	15.14 *(2.98)*	201 *(94)*	53 *(12)*	29.26 *(99.09)*
				9th Gear					
229.71 *(171.29)*	21167 *(94.15)*	4.07 *(6.55)*	2001	5.61	0.452 *(0.275)*	15.64 *(3.08)*	207 *(97)*	54 *(12)*	29.25 *(99.05)*
				10th Gear					
232.61 *(173.45)*	18651 *(82.96)*	4.68 *(7.53)*	2000	3.71	0.445 *(0.271)*	15.89 *(3.13)*	201 *(94)*	55 *(13)*	29.23 *(98.98)*
				11th Gear					
231.96 *(172.98)*	16228 *(72.19)*	5.36 *(8.63)*	1999	2.51	0.445 *(0.271)*	15.87 *(3.13)*	204 *(95)*	57 *(14)*	29.21 *(98.92)*
				12th Gear					
231.18 *(172.39)*	14238 *(63.33)*	6.09 *(9.80)*	1999	1.90	0.446 *(0.272)*	15.83 *(3.12)*	199 *(93)*	58 *(14)*	29.19 *(98.85)*
				13th Gear					
229.19 *(170.91)*	10980 *(48.84)*	7.83 *(12.60)*	2004	1.20	0.447 *(0.272)*	15.80 *(3.11)*	207 *(97)*	58 *(14)*	29.18 *(98.82)*

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At no load in 9th gear	75.7
Transport speed - no load - 16th gear	79.1
Bystander in 16th Gear	89.7

TIRES, BALLAST AND WEIGHT	With Ballast	Without Ballast
Track width	30.0 in *(760 mm)*	30.0 in *(760 mm)*
Ballast - Cast iron(front)	2250 lb *(1021 kg)*	None
Height of Drawbar	18.5 in *(470 mm)*	18.5 in *(470 mm)*
Static Weight with operator	28795 lb(*13061 kg)*	26545 lb(*12040 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE: The 8410T engine has an electronic control system which provides a vehicle protection system to avoid overloading the drive train. This system provides four different engine power levels. The engine produces up to165 PTO hp when the transmission is in forward gears 1 through 4 and the PTO is not engaged. The engine produces up to185 PTO hp when the transmission is in 5th forward gear and the PTO is not engaged. The engine produces up to 205 PTO hp when the transmission is in 6th forward gear and the PTO is not engaged. The engine produces up to 235 PTO Hp in all other applications.

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 126°F*(52°C)*. 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. **1778**, Nebraska Summary 313, July 7, 2000.

Leonard L. Bashford
Director

G. J. Hoffman
M. F. Kocher
R. D. Grisso, Jr.
Board of Tractor Test Engineers

DRAWBAR PERFORMANCE
(Ballasted at 2000 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)*
					2nd Gear				
105.93	30541	1.30	2253	14.44	0.619	11.43	178	45	29.10
(78.99)	*(135.85)*	*(2.09)*			*(0.376)*	*(2.25)*	*(81)*	*(7)*	*(98.54)*
					3rd Gear				
133.02	30091	1.66	2149	10.25	0.530	13.34	181	41	29.06
(99.19)	*(133.85)*	*(2.67)*			*(0.322)*	*(2.63)*	*(83)*	*(5)*	*(98.41)*
					4th Gear				
147.43	27038	2.04	2002	6.89	0.483	14.62	183	41	29.06
(109.94)	*(120.27)*	*(3.29)*			*(0.294)*	*(2.88)*	*(84)*	*(5)*	*(98.41)*
					5th Gear				
175.00	26326	2.49	2000	6.19	0.457	15.45	185	44	29.05
(130.50)	*(117.10)*	*(4.01)*			*(0.278)*	*(3.04)*	*(85)*	*(7)*	*(98.37)*
					6th Gear				
197.29	26400	2.80	2001	6.47	0.453	15.60	187	44	29.05
(147.12)	*(117.43)*	*(4.51)*			*(0.276)*	*(3.07)*	*(86)*	*(7)*	*(98.37)*
					7th Gear				
225.15	26878	3.14	2000	7.44	0.457	15.47	199	47	29.04
(167.90)	*(119.56)*	*(5.06)*			*(0.278)*	*(3.05)*	*(93)*	*(8)*	*(98.34)*
					8th Gear				
231.93	23961	3.63	1998	5.12	0.442	15.99	203	49	29.03
(172.95)	*(106.58)*	*(5.84)*			*(0.269)*	*(3.15)*	*(95)*	*(9)*	*(98.31)*
					9th Gear				
235.13	21175	4.16	2000	3.57	0.435	16.25	206	51	29.02
(175.34)	*(94.19)*	*(6.70)*			*(0.264)*	*(3.20)*	*(96)*	*(11)*	*(98.27)*
					10th Gear				
235.55	18602	4.75	2002	2.59	0.435	16.23	197	52	29.01
(175.65)	*(82.75)*	*(7.64)*			*(0.265)*	*(3.20)*	*(92)*	*(11)*	*(98.24)*
					11th Gear				
234.80	16253	5.42	2003	1.98	0.437	16.16	209	55	28.97
(175.09)	*(72.30)*	*(8.72)*			*(0.266)*	*(3.18)*	*(98)*	*(13)*	*(98.10)*
					12th Gear				
232.28	14199	6.13	2002	1.44	0.439	16.09	199	56	28.96
(173.21)	*(63.16)*	*(9.87)*			*(0.267)*	*(3.17)*	*(93)*	*(13)*	*(98.07)*
					13th Gear				
227.68	10874	7.85	2002	1.04	0.450	15.71	209	57	28.94
(169.78)	*(48.37)*	*(12.64)*			*(0.274)*	*(3.10)*	*(98)*	*(14)*	*(98.00)*

DRAWBAR PERFORMANCE

(Ballasted at 2200 RPM)

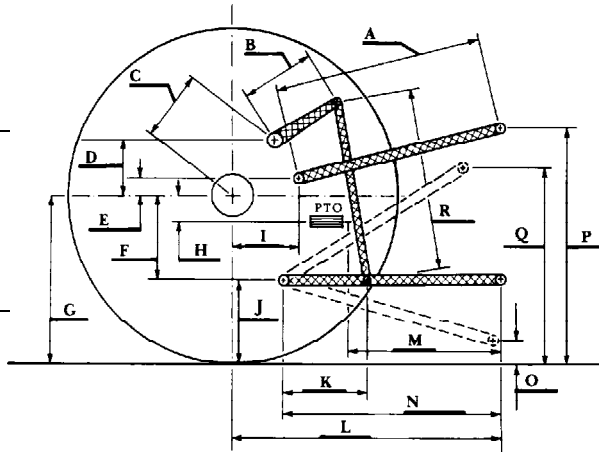
MAXIMUM POWER IN SELECTED GEARS

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)*
				2nd Gear					
103.98 *(77.54)*	30086 *(133.83)*	1.30 *(2.09)*	2253	14.73	0.623 *(0.379)*	11.34 *(2.23)*	179 *(82)*	50 *(10)*	29.10 *(98.54)*
				3rd Gear					
128.82 *(96.06)*	27359 *(121.70)*	1.77 *(2.84)*	2200	6.54	0.530 *(0.322)*	13.34 *(2.63)*	181 *(83)*	41 *(5)*	29.07 *(98.44)*
				4th Gear					
132.05 *(98.47)*	21208 *(94.34)*	2.33 *(3.76)*	2201	3.35	0.514 *(0.313)*	13.74 *(2.71)*	181 *(83)*	42 *(6)*	29.06 *(98.40)*
				5th Gear					
158.53 *(118.22)*	21016 *(93.48)*	2.83 *(4.55)*	2200	3.20	0.484 *(0.295)*	14.59 *(2.87)*	184 *(84)*	44 *(7)*	29.06 *(98.40)*
				6th Gear					
178.69 *(133.25)*	21009 *(93.45)*	3.19 *(5.13)*	2201	3.27	0.473 *(0.288)*	14.94 *(2.94)*	183 *(84)*	45 *(7)*	29.05 *(98.37)*
				7th Gear					
206.78 *(154.19)*	21529 *(95.77)*	3.60 *(5.80)*	2199	3.42	0.464 *(0.282)*	15.25 *(3.00)*	188 *(87)*	46 *(8)*	29.05 *(98.37)*
				8th Gear					
207.28 *(154.57)*	18961 *(84.34)*	4.10 *(6.60)*	2202	2.82	0.466 *(0.283)*	15.17 *(2.99)*	198 *(92)*	51 *(11)*	29.03 *(98.31)*
				9th Gear					
206.61 *(154.07)*	16644 *(74.03)*	4.66 *(7.49)*	2201	2.06	0.468 *(0.284)*	15.12 *(2.98)*	194 *(90)*	51 *(11)*	29.02 *(98.27)*
				10th Gear					
205.79 *(153.46)*	14621 *(65.04)*	5.28 *(8.49)*	2201	1.51	0.466 *(0.283)*	15.17 *(2.99)*	193 *(89)*	53 *(12)*	29.00 *(98.21)*
				11th Gear					
202.13 *(150.73)*	12640 *(56.23)*	6.00 *(9.65)*	2201	1.28	0.473 *(0.288)*	14.94 *(2.94)*	197 *(91)*	54 *(12)*	28.99 *(98.17)*
				12th Gear					
200.37 *(149.42)*	11069 *(49.24)*	6.79 *(10.93)*	2200	0.97	0.478 *(0.291)*	14.80 *(2.91)*	197 *(91)*	56 *(13)*	28.96 *(98.07)*
				13th Gear					
194.16 *(144.79)*	8418 *(37.45)*	8.65 *(13.92)*	2201	0.89	0.494 *(0.300)*	14.31 *(2.82)*	198 *(92)*	57 *(14)*	28.94 *(98.00)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III
Quick Attach: yes
Maximum Force Exerted Through Whole Range: 15749 lbs *(70.1 kN)*
i) Opening pressure of relief valve: NA

		High flow option
Sustained pressure at compensator cutoff:	2900 psi *(200 bar)*	2930 psi *(202 bar)*
two outlet sets combined		
ii) Pump delivery rate at minimum pressure and rated engine speed:	34.7 GPM *(131.4 l/min)*	43.3 GPM *(163.9 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	32.8 GPM *(124.2 l/min)*	41.0 GPM *(155.2 l/min)*
Delivery pressure:	2540 psi *(175 bar)*	2370 psi *(163 bar)*
Power:	48.6 HP *(36.2 kW)*	56.7 HP *(42.3 kW)*
single outlet set		
ii) Pump delivery rate at minimum pressure and rated engine speed:	31.4 GPM *(118.9 l/min)*	32.2 GPM *(121.9 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	29.9 GPM *(124.2 l/min)*	27.7 GPM *(104.9 l/min)*
Delivery pressure:	2200 psi *(152 bar)*	2250 psi *(155 bar)*
Power:	38.4 HP *(28.6 kW)*	36.4 HP *(27.1 kW)*



HITCH DIMENSIONS AS TESTED NO LOAD

	inch	*mm*
A	28.9	*733*
B	19.5	*495*
C	22.9	*582*
D	22.2	*565*
E	10.2	*260*
F	11.0	*280*
G	33.6	*853*
H	3.2	*81*
I	15.6	*395*
J	22.6	*573*
K	28.3	*718*
L	48.5	*1231*
*L'	52.0	*1320*
M	25.5	*647*
N	41.6	*1056*
O	8.0	*203*
P	40.8	*1037*
Q	39.1	*993*
R	42.9	*1089*

*L' to Quick Attach ends

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. *(bar)*: 2890 *(199)*
Location: lift cylinder
Hydraulic oil temperature: °F *(°C)*: 148 *(64)*
Location: hydraulic sump
Category: III
Quick attach: yes

SAE Static Test System pressure 2575 psi *(177 Bar)*

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	16.1 *(408)*	24.1 *(613)*	32.1 *(814)*	40.0 *(1016)*
Lift force on frame lb	15904	15964	16354	16348	15410
" " " " " " *(kN)*	*(70.7)*	*(71.0)*	*(72.8)*	*(72.7)*	*(68.6)*

ASAE Static Test System pressure 2850 psi *(196 Bar)*

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	16.1 *(408)*	24.1 *(613)*	32.1 *(814)*	40.0 *(1016)*
Lift force on frame lb	17671	17634	18059	18053	16981
" " " " " " *(kN)*	*(78.6)*	*(78.4)*	*(80.3)*	*(80.3)*	*(52.7)*

JOHN DEERE 8410T DIESEL

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