January 1996

Test 1717: John Deere 5500 Diesel 9-Speed

Nebraska Tractor Test Lab
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NEBRASKA OECD TRACTOR TEST 1717—SUMMARY 212
JOHN DEERE 5500 DIESEL
9 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—544 rpm)					
74.04 (55.21)	2400	4.48 (16.94)	0.424 (0.258)	16.54 (3.26)	
VARYING POWER AND FUEL CONSUMPTION					
74.04 (55.21)	2400	4.48 (16.94)	0.424 (0.258)	16.54 (3.26)	Air temperature
65.18 (48.60)	2482	4.15 (15.71)	0.446 (0.272)	15.70 (3.09)	75°F (24°C)
49.32 (36.77)	2505	3.42 (12.96)	0.487 (0.296)	14.41 (2.84)	Relative humidity
33.05 (24.65)	2519	2.74 (10.37)	0.581 (0.353)	12.07 (2.38)	56%
16.67 (12.43)	2541	2.10 (7.94)	0.882 (0.536)	7.95 (1.57)	Barometer
0.44 (0.33)	2561	1.45 (5.51)	23.051 (14.021)	0.30 (0.06)	29.04" Hg (98.34 kPa)

Maximum Torque 199 lb.-ft. (270 Nm) at 1702 rpm
Maximum Torque Rise 22.9%
Torque rise at 1900 engine rpm 20%

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 6th(B3) Gear									
63.11 (47.06)	3858 (17.16)	6.14 (9.87)	2402	7.07	0.496 (0.302)	14.13 (2.78)	187 (86)	67 (19)	29.10 (98.54)
75% of Pull at Maximum Power 6th(B3) Gear									
51.01 (38.04)	2901 (12.90)	6.59 (10.61)	2512	4.62	0.536 (0.326)	13.07 (2.57)	186 (86)	64 (18)	29.00 (98.21)
50% of Pull at Maximum Power 6th(B3) Gear									
34.75 (25.91)	1925 (8.56)	6.77 (10.90)	2535	2.91	0.627 (0.381)	11.19 (2.20)	185 (85)	64 (18)	29.00 (98.21)
75% of Pull at Reduced Engine Speed 7th(C1) Gear									
50.99 (38.03)	2908 (12.93)	6.58 (10.58)	1796	4.48	0.447 (0.272)	15.70 (3.09)	184 (84)	64 (18)	29.00 (98.21)
50% of Pull at Reduced Engine Speed 7th(C1) Gear									
34.75 (25.91)	1923 (8.55)	6.78 (10.91)	1820	2.91	0.487 (0.296)	14.39 (2.84)	182 (83)	64 (18)	29.00 (98.21)

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)
4th (B1) Gear									
42.08 (31.38)	5243 (23.32)	3.01 (4.84)	2526	14.63	0.605 (0.368)	11.58 (2.28)	184 (84)	68 (20)	29.13 (98.65)
5th (B2) Gear									
58.23 (43.42)	5114 (22.75)	4.27 (6.87)	2466	14.01	0.541 (0.329)	12.96 (2.55)	186 (86)	68 (20)	29.12 (98.61)
6th (B3) Gear									
63.11 (47.06)	3858 (17.16)	6.14 (9.87)	2402	7.07	0.496 (0.302)	14.13 (2.78)	187 (86)	67 (19)	29.10 (98.54)
7th (C1) Gear									
64.81 (48.33)	2750 (12.23)	8.84 (14.23)	2402	4.06	0.483 (0.294)	14.51 (2.86)	186 (86)	66 (19)	29.07 (98.44)

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

Dates of Test: September 17-27, 1996

Manufacturer: John Deere Commercial Products Inc., P.O. Box 15458, Augusta Ga 30919-1458

FUEL OIL and TIME: Fuel No. 2 Diesel **Cetane No.** 50.6 **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8422 **Fuel weight** 7.012 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CE/CF-4 **To motor** 2.159 gal *(8.174 l)* **Drained from motor** 1.755 gal *(6.642 l)* **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Front axle lubricant** John Deere GL-5 Gear Lubricant SAE 80W-90 **Total time engine was operated** 18.0 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger **Serial No.** *CD 4039T 270198* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** (as specified) 4.19" × 4.331" *(106.4 mm × 110.0 mm)* **Compression ratio** 17.8 to 1 **Displacement** 239 cu in *(3900 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element and one polyester felt element **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** one paper element and sediment bowl **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat

ENGINE OPERATING PARAMETERS: fuel rate: 29.2 - 33.6 lb/h *(13.25 - 15.25 kg/h)* **high idle:** 2525 - 2625 rpm **Turbo boost** nominal 6.0 - 7.4 psi *(41 - 51 kPa)* as measured 6.5 psi *(44 kPa)*

CHASSIS: Type front wheel assist **Serial No.** *LV5500E-551974* **Tread width** rear 60.4" *(1535 mm)* to 72.4" *(1838 mm)* front 51.0" *(1295 mm)* to 79.0" *(2007 mm)* **Wheel base** 85.7" *(2177 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph *(km/h)*** first 1.40 *(2.25)* second 2.02 *(3.25)* third 2.75 *(4.43)* fourth 3.23 *(5.20)* fifth 4.67 *(7.51)* sixth 6.36 *(10.23)* seventh 8.87 *(14.27)* eighth 12.81 *(20.61)* ninth 17.46 *(18.10)* reverse 2.35 *(3.78)*, 5.43 *(8.74)*, 14.91 *(23.99)* **Clutch** single dry disc operated by foot pedal **Brakes** wet single disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2376 engine rpm **Unladen tractor mass** 5780 lb *(2622 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

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)
Maximum Power 6th(B3) Gear									
61.96 (46.20)	3811 (16.95)	6.10 (9.81)	2401	7.04	0.502 (0.306)	13.96 (2.75)	187 (86)	52 (11)	28.72 (97.26)
75% of Pull at Maximum Power 6th(B3) Gear									
49.08 (36.60)	2852 (12.69)	6.45 (10.39)	2488	4.95	0.549 (0.334)	12.77 (2.52)	185 (85)	54 (12)	28.68 (97.12)
50% of Pull at MaximumPower 6th(B3) Gear									
33.67 (25.11)	1903 (8.46)	6.63 (10.68)	2516	3.41	0.647 (0.394)	10.84 (2.13)	180 (82)	54 (12)	28.68 (97.12)
75% of Pull at Reduced Engine Speed 7th(C1) Gear									
49.00 (36.54)	2863 (12.73)	6.42 (10.33)	1774	4.95	0.459 (0.279)	15.29 (3.01)	184 (84)	54 (12)	28.68 (97.12)
50% of Pull at Reduced Engine Speed 7th(C1) Gear									
33.65 (25.09)	1888 (8.40)	6.68 (10.76)	1817	3.34	0.504 (0.307)	13.90 (2.74)	182 (83)	54 (12)	28.68 (97.12)

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)
4th (B1) Gear									
51.22 (38.19)	6483 (28.84)	2.96 (4.77)	2506	14.67	0.563 (0.342)	12.46 (2.45)	189 (87)	50 (10)	28.69 (97.16)
5th (B2) Gear									
60.55 (45.15)	5285 (23.51)	4.30 (6.92)	2403	10.66	0.512 (0.312)	13.69 (2.70)	185 (85)	52 (11)	28.71 (97.22)
6th (B3) Gear									
61.96 (46.20)	3811 (16.95)	6.10 (9.81)	2401	7.04	0.502 (0.306)	13.96 (2.75)	187 (86)	52 (11)	28.72 (97.26)
7th (C1) Gear									
62.00 (46.24)	2670 (11.88)	8.71 (14.01)	2401	4.74	0.503 (0.306)	13.95 (2.75)	185 (85)	53 (12)	28.70 (97.19)

DRAWBAR PERFORMANCE
(Ballasted–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)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool-ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd (A3) Gear									
51.53 (38.43)	7797 (34.68)	2.48 (3.99)	2509	14.82	0.567 (0.345)	12.38 (2.44)	180 (82)	51 (11)	28.69 (97.16)
4th (B1) Gear									
58.76 (43.82)	7696 (34.23)	2.86 (4.61)	2418	14.88	0.531 (0.323)	13.20 (2.60)	186 (85)	52 (11)	28.70 (97.19)
5th (B2) Gear									
63.51 (47.36)	5353 (23.81)	4.45 (7.16)	2401	7.72	0.493 (0.300)	14.23 (2.80)	186 (86)	52 (11)	28.72 (97.26)
6th (B3) Gear									
63.39 (47.27)	3790 (16.86)	6.27 (10.09)	2407	4.90	0.494 (0.300)	14.20 (2.80)	187 (86)	53 (12)	28.71 (97.22)
7th (C1) Gear									
62.17 (46.36)	2623 (11.67)	8.89 (14.31)	2403	3.14	0.498 (0.303)	14.07 (2.77)	185 (85)	54 (12)	28.67 (97.09)

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive Disengaged dB(A)	Engaged dB(A)
At 75% load in 6th(B3) Gear	96.5	97.0
Bystander in 9th(C3) Gear	86.5	- - -

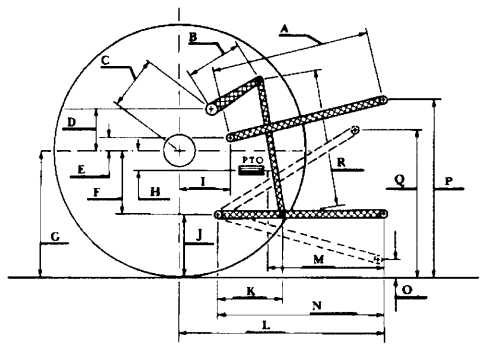
REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump was maintained at 132° F *(56° C)*. The performance figures on this summary were taken from a test conducted under the OECD Code II Restricted Standard Test Code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1717**, Summary 212, October 8, 1996.

LOUIS I. LEVITICUS
Engineer-in-Charge

L.L. BASHFORD
R.D. GRISSO
M.F. KOCHER
Board of Tractor Test Engineers

TIRES AND WEIGHT	With Ballast	Without Ballast
Rear Tires—No., size, ply & psi *(kPa)*	Two 18.4-30; 6; 16 *(110)*	Two 18.4-30; 6; 12 *(85)*
Ballast—Liquid (total)	2026 lb *(919 kg)*	None
—Cast Iron (total)	1260 lb *(572 kg)*	None
Front Tires—No., size, ply & psi *(kPa)*	Two 12.4-24; 6; 16 *(110)*	Two 12.4-24; 6; 12 *(85)*
Ballast—Liquid (total)	None	None
—Cast Iron (total)	475 lb *(215 kg)*	None
Height of Drawbar	18.5 in *(470 mm)*	19.5 in *(495 mm)*
Static Weight with Operator—Rear	6756 lb *(3065 kg)*	3545 lb *(1608 kg)*
—Front	2950 lb *(1338 kg)*	2400 lb *(1089 kg)*
Total	9706 lb *(4403 kg)*	5945 lb *(2697 kg)*



THREE POINT HITCH PERFORMANCE (ASAE Static Test)

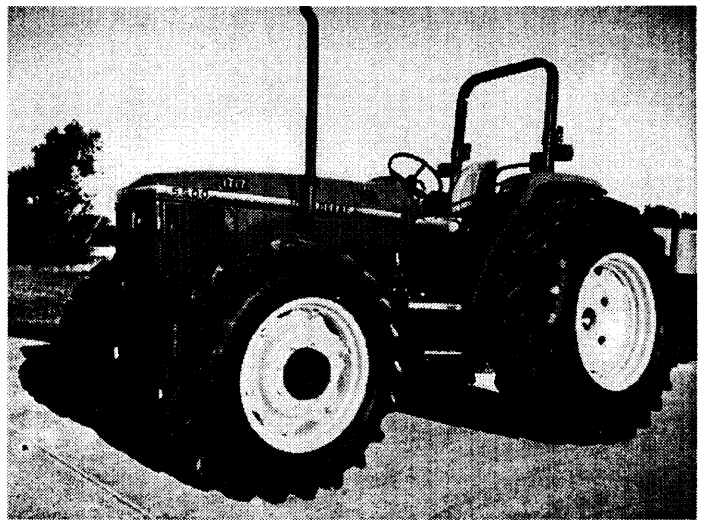
Observed Maximum Pressure psi *(bar)*	2830 *(195)*				
Location	remote outlet				
Hydraulic oil Temperature 'F *('C)*	170 *(77)*				
Location	hydraulic sump				
Category	II				
Quick Attach	None				
Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	15.0 *(381)*	22.0 *(559)*	29.0 *(737)*	36.0 *(914)*
Lift force on frame lb.	4686	4713	4625	4178	3619
" " " " *(kN)*	*(20.8)*	*(21.0)*	*(20.6)*	*(18.6)*	*(16.1)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II		
Quick Attach: None		
Maximum Force Exerted Through Whole Range:	2905 lbs	*(12.9 kN)*
i) Opening pressure of relief valve:	NA	
Sustained pressure with relief valve open:	2800 psi	*(193 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	16.5 GPM	*(62.5 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	15.6 GPM	*(59.1 l/min)*
Delivery pressure:	2400 psi	*(165 bar)*
Power:	21.8 HP	*(16.3 kW)*

HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	24.1	*613*
B	11.0	*280*
C	14.0	*356*
D	12.2	*311*
E	11.2	*284*
F	6.6	*166*
G	27.4	*695*
H	0.2	*4*
I	15.1	*384*
J	20.8	*529*
K	16.7	*424*
L	39.2	*996*
M	22.4	*570*
N	32.9	*836*
O	8.0	*203*
P	44.9	*1140*
Q	34.0	*864*
R	20.8	*527*



John Deere 5500 Diesel

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