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Test 1471: John Deere 2550 Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1471 — JOHN DEERE 2550 DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb	
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—567 rpm)								
65.94 (49.17)	2500	4.408 (16.686)	0.469 (0.285)	14.96 (2.947)	186 (85.5)	53 (11.9)	75 (23.7)	29.043 (98.075)
Standard Power Take-off Speed (540 rpm)—One Hour								
65.53 (48.87)	2382	4.250 (16.088)	0.455 (0.277)	15.42 (3.038)	186 (85.3)	53 (11.6)	75 (23.7)	29.040 (98.064)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
57.46 (42.85)	2564	3.924 (14.854)	0.479 (0.291)	14.64 (2.885)	184 (84.4)	56 (13.3)	75 (23.9)	..... .....
0.00 (0.00)	2612	1.605 (6.076)	..... .....	..... .....	180 (82.2)	53 (11.7)	74 (23.6)	..... .....
28.94 (21.58)	2580	2.568 (9.721)	0.622 (0.378)	11.27 (2.220)	182 (83.1)	53 (11.7)	74 (23.6)	..... .....
65.95 (49.18)	2500	4.399 (16.652)	0.468 (0.284)	14.99 (2.953)	186 (85.6)	52 (11.4)	75 (23.9)	..... .....
14.61 (10.89)	2604	2.063 (7.809)	0.990 (0.602)	7.08 (1.395)	180 (82.2)	52 (11.4)	75 (23.9)	..... .....
43.35 (32.33)	2578	3.193 (12.087)	0.516 (0.314)	13.58 (2.675)	183 (83.9)	54 (12.5)	75 (23.9)	..... .....
Av Av	35.05 (26.14)	2.959 (11.201)	0.592 (0.360)	11.85 (2.334)	182 (83.6)	54 (12.0)	75 (23.8)	28.975 (97.844)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power—Two Hours 9th (5L) Gear											
55.38 (41.29)	4322 (19.23)	4.80 (7.73)	2500	6.86	4.315 (16.335)	0.546 (0.332)	12.83 (2.528)	189 (86.9)	46 (7.5)	52 (11.1)	28.820 (97.321)
75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear											
44.10 (32.89)	3269 (14.54)	5.06 (8.14)	2582	5.06	3.648 (13.811)	0.580 (0.353)	12.09 (2.381)	187 (86.3)	48 (8.9)	55 (12.8)	28.803 (97.263)
50% of Pull at Maximum Power—Two Hours 9th (5L) Gear											
30.25 (22.55)	2189 (9.74)	5.18 (8.34)	2599	3.36	2.996 (11.340)	0.694 (0.422)	10.10 (1.989)	186 (85.6)	52 (10.8)	61 (15.8)	28.805 (97.270)
50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear											
30.22 (22.54)	2188 (9.73)	5.18 (8.34)	1476	3.29	2.068 (7.830)	0.480 (0.292)	14.61 (2.878)	187 (86.1)	56 (13.1)	67 (19.4)	28.755 (97.101)
MAXIMUM POWER IN SELECTED GEARS											
48.67 (36.29)	6979 (31.04)	2.62 (4.21)	2560	14.69	5th (3L) Gear			188 (86.4)	43 (6.1)	47 (8.3)	28.830 (97.355)
52.93 (39.47)	5884 (26.17)	3.37 (5.43)	2502	11.51	6th (3H) Gear			189 (87.2)	57 (13.9)	66 (18.9)	28.780 (97.186)
53.98 (40.25)	5595 (24.89)	3.62 (5.82)	2501	10.33	7th (4L) Gear			189 (86.9)	57 (13.9)	66 (18.9)	28.780 (97.186)
55.03 (41.04)	4329 (19.25)	4.77 (7.67)	2497	7.06	8th (4H) Gear			189 (87.2)	57 (13.9)	66 (18.9)	28.780 (97.186)
56.13 (41.86)	4379 (19.48)	4.81 (7.74)	2501	6.86	9th (5L) Gear			188 (86.7)	44 (6.7)	50 (10.0)	28.820 (97.321)
56.24 (41.94)	3390 (15.08)	6.22 (10.01)	2500	5.23	10th (5H) Gear			189 (87.2)	58 (14.4)	65 (18.3)	28.770 (97.152)
55.93 (41.71)	3086 (13.72)	6.80 (10.94)	2500	4.69	11th (6L) Gear			189 (87.2)	57 (13.9)	65 (18.3)	28.770 (97.152)
55.13 (41.11)	2361 (10.50)	8.76 (14.09)	2499	3.54	12th (6H) Gear			189 (87.2)	57 (13.9)	65 (18.3)	28.770 (97.152)

Department of Agricultural Engineering

Dates of Test: April 11 to May 3, 1983

Manufacturer: JOHN DEERE WERKE MANN-HEIM, Mannheim, West Germany

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8420 **Fuel weight** 7.010 lbs/gal (0.840 kg/l) **Oil SAE 15W-40 API service classification** CD, CC, SD **To motor** 1.635 gal (6.188 l) **Drained from motor** 1.197 gal (4.531 l) **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 37.5 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical **Serial No.** 4239DL06552882CD **Crankshaft** lengthwise **Rated rpm** 2500 **Bore and stroke** 4.19" x 4.33" (106.5 mm x 110 mm) **Compression ratio** 16.8 to 1 **Displacement** 239 cu in (3920 ml) **Starting system** 12 volt **Lubrication pressure** **Air cleaner** two paper elements **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 one mesh screen **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** standard **Serial No.** *L02550T466899* **Tread width** rear 65.4" (1660 mm) to 96.1" (2440 mm) front 59.4" (1510 mm) to 77.2" (1962 mm) **Wheel base** 89.2" (2266 mm) **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 30.0" (764 mm) Vertical distance above roadway 33.5" (851 mm) Horizontal distance from center of rear wheel tread 0" (0 mm) to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.5 (2.4) second 1.9 (3.1) third 2.1 (3.3) fourth 2.6 (4.3) fifth 3.0 (4.8) sixth 3.8 (6.1) seventh 4.0 (6.5) eighth 5.1 (8.3) ninth 5.2 (8.3) tenth 6.6 (10.6) eleventh 7.1 (11.5) twelfth 9.1 (14.6) thirteenth 10.2 (16.5) fourteenth 13.0 (21.0) fifteenth 13.8 (22.2) sixteenth 17.6 (28.3) reverse 2.3 (3.7), 2.9 (4.7), 3.2 (5.1), 4.1 (6.5), 4.6 (7.4), 5.8 (9.4), 6.2 (10.0), 7.9 (12.7) **Clutch** single dry disc operated by foot pedal **Brakes** wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 131" (3.33 m) left 131" (3.33 m) (on concrete surface without brake) right 147" (3.73 m) left 147" (3.73 m) **Turning space diameter** (on concrete surface with brake applied) right 271" (6.88 m) left 271" (6.88 m) (on concrete surface without brake) right 303" (7.70 m) left 303" (7.70 m) **Power take-off** 540 rpm at 2382 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

Crankshaft Speed rpm	2501	2251	2004	1748	1503	1257
Pull—lbs (kN)	4379 (19.48)	4714 (20.97)	4978 (22.14)	5220 (23.22)	5226 (23.25)	5220 (23.22)
Increase in Pull %	0	8	14	19	19	19
Power—Hp (kW)	56.13 (41.86)	53.85 (40.15)	50.26 (37.48)	45.62 (34.02)	39.20 (29.23)	32.75 (24.42)
Speed—Mph (km/h)	4.81 (7.74)	4.28 (6.89)	3.79 (6.09)	3.28 (5.27)	2.81 (4.53)	2.35 (3.79)
Slip %	6.86	7.94	8.57	9.18	9.31	9.31

TRACTOR SOUND LEVEL WITHOUT CAB

dB(A)

Maximum Available Power—Two Hours	95.5
75% of Pull at Maximum Power—Ten Hours	95.0
50% of Pull at Maximum Power—Two Hours	93.5
50% of Pull at Reduced Engine Speed—Two Hours	89.5
Bystander in 16th (8H) gear	86.0

TIRES, BALLAST 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; 16 (110)
Ballast	762 lb (346 kg)	None
—Liquid (each)	None	None
—Cast Iron (each)	None	None
Front Tires		
—No., size, ply & psi (kPa)	Two 10.00-16; 6; 32 (220)	Two 10.00-16; 6; 32 (220)
Ballast	None	None
—Liquid (each)	25 lb (11 kg)	None
—Cast Iron (each)	None	None
Height of Drawbar	19.5 in (495 mm)	19.5 in (495 mm)
Static Weight with Operator—Rear	6165 lb (2797 kg)	4640 lb (2105 kg)
—Front	2320 lb (1052 kg)	2270 lb (1029 kg)
—Total	8485 lb (3849 kg)	6910 lb (3134 kg)

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 136°F (57.8°C). Eight gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1471.

LOUIS I. LEVITICUS

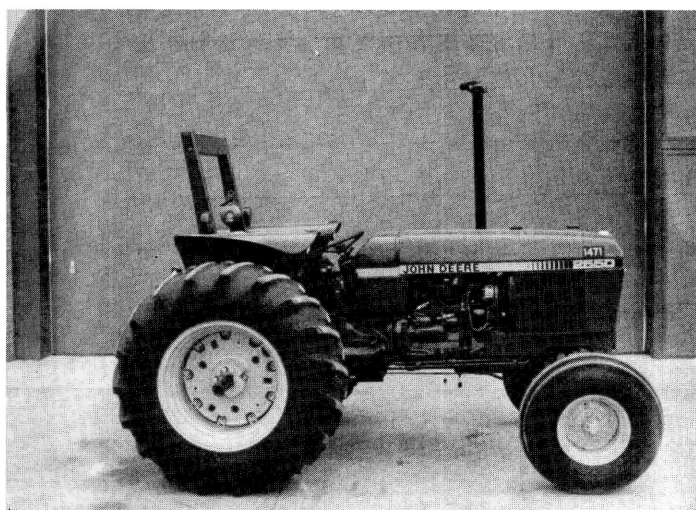
Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



John Deere 2550 Diesel