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Test 1473: John Deere 2950 Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1473 — JOHN DEERE 2950 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—1039 rpm)									
85.37 (63.66)	2500	5.398 (20.434)	0.443 (0.270)	15.82 (3.115)	184 (84.2)	52 (10.8)	75 (23.9)	28.843 (97.400)	
Standard Power Take-off Speed (1000 rpm)—One Hour									
85.50 (63.76)	2407	5.237 (19.824)	0.429 (0.261)	16.33 (3.216)	183 (84.1)	50 (10.2)	74 (23.6)	28.820 (97.321)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
74.37 (55.46)	2563	4.937 (18.689)	0.465 (0.283)	15.06 (2.968)	178 (81.4)	52 (10.8)	76 (24.2)	..... .....
0.00 (0.00)	2650	1.938 (7.336)	..... .....	..... .....	172 (78.1)	52 (11.1)	74 (23.6)	..... .....
37.83 (28.21)	2607	3.359 (12.715)	0.622 (0.379)	11.26 (2.219)	176 (80.0)	51 (10.6)	72 (22.2)	..... .....
86.14 (64.23)	2500	5.382 (20.373)	0.438 (0.267)	16.01 (3.153)	184 (84.2)	51 (10.6)	73 (22.8)	..... .....
19.06 (14.21)	2626	2.648 (10.024)	0.974 (0.593)	7.20 (1.418)	174 (78.6)	51 (10.6)	74 (23.1)	..... .....
56.22 (41.92)	2584	4.137 (15.660)	0.516 (0.314)	13.59 (2.677)	178 (80.8)	52 (10.8)	76 (24.2)	..... .....
Av Av	45.60 (34.00)	2588	3.734 (14.135)	0.574 (0.349)	12.21 (2.405)	177 (80.5)	51 (10.7)	74 (23.3)	28.840 (97.388)

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											
72.12 (53.78)	5328 (23.70)	5.08 (8.17)	2501	6.57	5.312 (20.109)	0.517 (0.314)	13.58 (2.674)	187 (86.1)	60 (15.6)	75 (23.6)	28.535 (96.358)
75% of Pull at Maximum Power—Ten Hours 9th (5L) Gear											
57.66 (43.00)	4048 (18.01)	5.34 (8.60)	2582	4.76	4.631 (17.532)	0.563 (0.343)	12.45 (2.453)	181 (82.9)	48 (8.8)	56 (13.4)	28.850 (97.422)
50% of Pull at Maximum Power—Two Hours 9th (5L) Gear											
39.43 (29.40)	2699 (12.01)	5.48 (8.82)	2606	3.33	3.744 (14.171)	0.666 (0.405)	10.53 (2.075)	180 (82.2)	49 (9.4)	52 (10.8)	28.815 (97.304)
50% of Pull at Reduced Engine Speed—Two Hours 12th (6H) Gear											
39.53 (29.48)	2699 (12.01)	5.49 (8.84)	1485	3.21	2.727 (10.325)	0.484 (0.294)	14.49 (2.855)	181 (82.5)	53 (11.4)	57 (13.9)	28.815 (97.304)
MAXIMUM POWER IN SELECTED GEARS											
63.90 (47.65)	8768 (39.00)	2.73 (4.40)	2555	14.99	5th (3L) Gear			180 (82.2)	43 (6.1)	44 (6.7)	28.810 (97.287)
69.64 (51.93)	7228 (32.15)	3.61 (5.81)	2499	9.81	6th (3H) Gear			184 (84.2)	58 (14.4)	67 (19.4)	28.470 (96.139)
71.27 (53.15)	6920 (30.78)	3.86 (6.22)	2501	9.05	7th (4L) Gear			184 (84.2)	57 (13.9)	65 (18.3)	28.460 (96.105)
72.01 (53.69)	5344 (23.77)	5.05 (8.13)	2497	6.39	8th (4H) Gear			184 (84.2)	56 (13.3)	63 (17.2)	28.450 (96.071)
73.06 (54.48)	5397 (24.00)	5.08 (8.17)	2501	6.46	9th (5L) Gear			187 (86.1)	60 (15.6)	74 (23.3)	28.530 (96.342)
73.30 (54.66)	4181 (18.60)	6.57 (10.58)	2499	4.80	10th (5H) Gear			185 (84.7)	59 (15.0)	69 (20.6)	28.480 (96.173)
73.11 (54.52)	3818 (16.98)	7.18 (11.56)	2501	4.34	11th (6L) Gear			186 (85.3)	60 (15.6)	70 (21.1)	28.490 (96.206)
71.84 (53.57)	2911 (12.95)	9.25 (14.89)	2501	3.24	12th (6H) Gear			186 (85.3)	60 (15.6)	71 (21.7)	28.500 (96.240)

Department of Agricultural Engineering

Dates of Test: April 18 to May 2, 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°)** 0.8421 **Fuel weight** 7.012 lbs/gal (0.840 kg/l) **Oil SAE 15W-40 API service classification** CD, CC, SD **To motor** 2.581 gal (9.772 l) **Drained from motor** 2.091 gal (7.916 l) **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 37.0 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical **Serial No.** 6359DL04554662CD **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** 359 cu in (5883 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** two thermostats.

CHASSIS: **Type** standard **Serial No.** *L02950T466905* **Tread width** rear 61.8" (1570 mm) to 94.9" (2410 mm) front 58.3" (1482 mm) to 80.3" (2040 mm) **Wheel base** 100.4" (2551 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 30.5" (776 mm) Vertical distance above roadway 40" (1016 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 1.6 (2.5) second 2.0 (3.2) third 2.2 (3.5) fourth 2.8 (4.5) fifth 3.1 (5.0) sixth 4.0 (6.4) seventh 4.2 (6.8) eighth 5.4 (8.7) ninth 5.4 (8.7) tenth 6.9 (11.1) eleventh 7.5 (12.0) twelfth 9.5 (15.3) thirteenth 10.7 (17.3) fourteenth 13.7 (22.0) fifteenth 14.5 (23.3) sixteenth 18.4 (29.7) reverse 2.4 (3.9), 3.1 (5.0), 3.4 (5.4), 4.3 (6.9), 4.8 (7.7), 6.1 (9.9), 6.5 (10.4), 8.3 (13.3) **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 144" (3.66 m) left 144" (3.66 m) (on concrete surface without brake) right 166" (4.22 m) left 166" (4.22 m) **Turning space diameter** (on concrete surface with brake applied) right 299" (7.59 m) left 299" (7.59 m) (on concrete surface without brake) right 343" (8.71 m) left 343" (8.71 m) **Power take-off** 540 rpm at 2415 engine rpm and 1000 rpm at 2407 engine rpm.

LUGGING ABILITY IN 9th (5L) GEAR

Crankshaft Speed rpm	2501	2251	2000	1758	1502	1251
Pull—lbs (kN)	5397 (24.00)	5833 (25.95)	6214 (27.64)	6465 (28.76)	6431 (28.61)	6399 (28.46)
Increase in Pull %	0	8	15	20	19	19
Power—Hp (kW)	73.06 (54.48)	70.76 (52.76)	66.56 (49.63)	60.58 (45.18)	51.47 (38.38)	42.67 (31.82)
Speed—Mph (km/h)	5.08 (8.17)	4.55 (7.32)	4.02 (6.46)	3.51 (5.66)	3.00 (4.83)	2.50 (4.02)
Slip %	6.46	6.97	7.70	7.99	7.99	8.13

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	76.0
75% of Pull at Maximum Power—Ten Hours	76.0
50% of Pull at Maximum Power—Two Hours	75.5
50% of Pull at Reduced Engine Speed—Two Hours	70.5
Bystander in 16th (8H) gear	88.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 18.4-38; 8; 16 (110)	Two 18.4-38; 8; 16 (110)
	—Liquid (each)	445 lb (202 kg)	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)
	—Liquid (each)	None	None
	—Cast Iron (each)	28 lb (12 kg)	None
Height of Drawbar		23.5 in (595 mm)	23.5 in (595 mm)
Static Weight with Operator—Rear	—Rear	7970 lb (3615 kg)	7080 lb (3211 kg)
	—Front	3075 lb (1395 kg)	3020 lb (1370 kg)
	—Total	11045 lb (5010 kg)	10100 lb (4581 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 118°F (47.8°C). Eight gears were chosen between 15% slip and 10 mph (16.1 km/h). During final inspection, the No. 5 piston was found to have an imprint of the exhaust valve. The imprint showed some pitting.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1473**.

LOUIS I. LEVITICUS

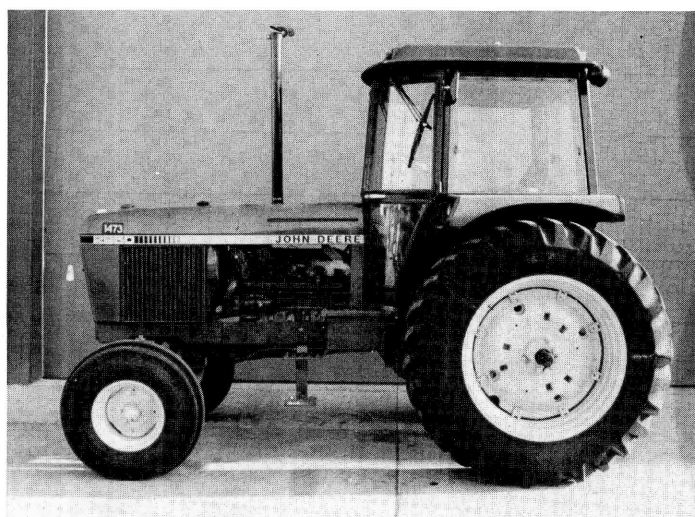
Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



John Deere 2950 Diesel

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