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Test 1249: John Deere 2840 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1249 — JOHN DEERE 2840 DIESEL

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—1150 rpm)									
80.65 (60.14)	2500	5.327 (20.164)	0.461 (0.280)	15.14 (2.983)	187 (86.3)	69 (20.6)	76 (24.6)	28.807 (97.276)	
Standard Power Take-off Speed (1000 rpm)—One Hour									
76.27 (56.88)	2172	4.761 (18.024)	0.436 (0.265)	16.02 (3.156)	189 (87.1)	70 (21.0)	77 (24.9)	28.850 (97.422)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
70.42 (52.51)	2569	4.876 (18.458)	0.483 (0.294)	14.44 (2.845)	184 (84.4)	70 (21.1)	78 (25.6)	..... .....
0.00 (0.00)	2672	2.047 (7.748)	..... .....	..... .....	167 (75.0)	70 (21.1)	77 (25.0)	..... .....
36.01 (26.85)	2628	3.405 (12.891)	0.660 (0.401)	10.58 (2.083)	174 (78.6)	70 (21.4)	78 (25.6)	..... .....
80.84 (60.28)	2501	5.349 (20.248)	0.462 (0.281)	15.11 (2.977)	188 (86.4)	70 (21.4)	78 (25.6)	..... .....
18.31 (13.65)	2652	2.709 (10.254)	1.032 (0.628)	6.76 (1.331)	170 (76.4)	70 (21.4)	78 (25.8)	..... .....
53.62 (39.99)	2602	4.115 (15.577)	0.535 (0.326)	13.03 (2.567)	178 (81.1)	70 (21.1)	78 (25.6)	..... .....
Av Av	43.20 (32.22)	2604	3.750 (14.196)	0.606 (0.368)	11.52 (2.269)	177 (80.3)	70 (21.3)	78 (25.5)	28.927 (97.681)

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)
Maximum Available Power—Two Hours 8th (4-H) Gear											
64.86 (48.37)	3916 (17.42)	6.21 (10.00)	2500	5.51	5.249 (19.871)	0.565 (0.344)	12.36 (2.434)	182 (83.1)	60 (15.3)	69 (20.6)	28.885 (97.540)
75% of Pull at Maximum Power—Ten Hours 8th (4-H) Gear											
53.05 (39.56)	3061 (13.62)	6.50 (10.46)	2575	3.97	4.586 (17.362)	0.603 (0.367)	11.57 (2.278)	182 (83.2)	65 (18.3)	82 (27.8)	28.775 (97.169)
50% of Pull at Maximum Power—Two Hours 8th (4-H) Gear											
36.77 (27.42)	2060 (9.16)	6.70 (10.77)	2621	2.81	3.834 (14.513)	0.727 (0.442)	9.59 (1.889)	174 (78.6)	62 (16.7)	74 (23.3)	28.920 (97.659)
50% of Pull at Reduced Engine Speed—Two Hours 10th (5-H) Gear											
36.66 (27.34)	2056 (9.14)	6.69 (10.76)	1579	2.70	2.795 (10.580)	0.532 (0.324)	13.12 (2.584)	179 (81.7)	62 (16.7)	79 (26.1)	28.900 (97.591)
MAXIMUM POWER IN SELECTED GEARS											
59.02 (44.01)	8386 (37.30)	2.64 (4.25)	2562	14.98	4th (2-H) Gear			173 (78.3)	69 (20.6)	72 (22.2)	28.720 (96.983)
62.80 (46.83)	6822 (30.35)	3.45 (5.56)	2500	10.32	5th (3-L) Gear			185 (84.7)	61 (16.1)	73 (22.8)	28.840 (97.388)
66.00 (49.22)	5477 (24.36)	4.52 (7.27)	2498	7.73	6th (3-H) Gear			185 (85.0)	64 (17.8)	73 (22.8)	28.810 (97.287)
65.88 (49.13)	5158 (22.95)	4.79 (7.71)	2498	7.19	7th (4-L) Gear			185 (85.0)	66 (18.9)	73 (22.8)	28.780 (97.186)
67.47 (50.31)	4073 (18.12)	6.21 (10.00)	2500	5.40	8th (4-H) Gear			185 (85.0)	67 (19.4)	74 (23.3)	28.750 (97.084)
65.42 (48.78)	2988 (13.29)	8.21 (13.21)	2501	4.12	9th (5-L) Gear			184 (84.4)	60 (15.6)	72 (22.2)	28.870 (97.490)
LUGGING ABILITY IN RATED GEAR 8th (4-H)											
Crankshaft Speed rpm			2500	2249	1995	1753	1494	1244	998		
Pull—lbs (kN)			4073 (18.12)	4379 (19.48)	4638 (20.63)	4789 (21.30)	4871 (21.67)	4904 (21.81)	4739 (21.08)		
Increase in Pull %			0	8	14	18	20	20	16		
Power—Hp (kW)			67.47 (50.31)	64.93 (48.42)	60.77 (45.32)	54.99 (41.00)	47.57 (35.48)	39.88 (29.74)	30.97 (23.09)		
Speed—Mph (km/h)			6.21 (10.00)	5.56 (8.95)	4.91 (7.91)	4.31 (6.93)	3.66 (5.89)	3.05 (4.91)	2.45 (3.94)		
Slip %			5.40	5.82	6.24	6.65	6.78	6.78	6.51		

Department of Agricultural Engineering

Dates of Test: June 14 to 30, 1977

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 51.8 (rating taken from oil company's typical inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8379 **Fuel weight** 6.977 lbs/gal (0.838 kg/l) **Oil SAE 30 API service classification** CD-CC-SD **To motor** 2.696 gal (10.205 l) **Drained from motor** 2.186 gal (8.275 l) **Transmission and final drive lubricant** John Deere Hy-Gard oil **Total time engine was operated** 44.5 hours

ENGINE Make John Deere Diesel **Type** 6 cylinder vertical **Serial No.** 300119CD **Crankshaft lengthwise** **Rated rpm** 2500 **Bore and stroke** 4.02" × 4.33" (102 mm × 110 mm) **Compression ratio** 17.0 to 1 **Displacement** 329 cu in (5392 ml) **Cranking system** 12 volt **Lubrication pressure** **Air cleaner** primary and safety paper elements with centrifugal precleaner and dust evacuation **Oil filter** full flow screw-on cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** snap-on cartridge **Muffler** vertical **Cooling medium temperature control** thermostat

CHASSIS: Type standard **Serial No.** 243096 **L Tread width** rear 61" (1549 mm) to 90" (2286 mm) front 57" (1445 mm) to 77" (1955 mm) **Wheel base** 97" (2464 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 28.0" (711 mm) Vertical distance above roadway 34.5" (876 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 power shift **Advertised speeds mph (km/h)** first 1.4 (2.3) second 1.8 (2.9) third 2.4 (3.8) fourth 3.0 (4.9) fifth 3.8 (6.2) sixth 4.9 (7.9) seventh 5.2 (8.3) eighth 6.6 (10.6) ninth 8.6 (13.8) tenth 10.9 (17.5) eleventh 13.8 (22.3) twelfth 17.6 (28.3) reverse 1.7 (2.8), 2.2 (3.5), 2.8 (4.6), 3.6 (5.9) 4.6 (7.5), 5.9 (9.5) **Clutch** dry disc operated by foot pedal **Brakes** wet disc hydraulically actuated and operated by two foot pedals which can be locked together **Steering power assist** **Turning radius** (on concrete surface with brake applied) right 130" (3.30 m) left 136.0" (3.45 m) (on concrete surface without brake) right 171" (4.34 m) left 160.5" (4.08 m) **Turning space diameter** (on concrete surface with brake applied) right 272" (6.91 m) left 284" (7.21 m) (on concrete surface without brake) right 354" (8.99 m) left 333" (8.46 m) **Power take-off** 540 rpm at 2178 engine rpm and 1000 rpm at 2172 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL		dB(A)
Maximum Available Power—Two Hours		95.0
75% of Pull at Maximum Power—Ten Hours		94.5
50% of Pull at Maximum Power—Two Hours		94.5
50% of Pull at Reduced Engine Speed—Two Hours		90.5
Bystander in 12th (6-H) gear		88.5
TIRES, BALLAST AND WEIGHT		
Rear Tires	—No., size, ply & psi (kPa)	Two 18.4-34; 8; 16 (110)
Ballast	—Liquid (each)	790 lb (358 kg)
	—Cast Iron (each)	None
Front Tires	—No., size, ply & psi (kPa)	Two 7.50-18; 6; 36 (250)
Ballast	—Liquid (each)	None
	—Cast Iron (each)	60 lb (27 kg)
Height of Drawbar		20 in (510 mm)
Static weight with operator—rear		7890 lb (3579 kg)
	front	2610 lb (1184 kg)
	total	10500 lb (4763 kg)
		6315 lb (2864 kg)
		2490 lb (1129 kg)
		8805 lb (3993 kg)

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 151°F (65.8°C). Six gears were chosen between 15% slip and 15 mph (24.1 km/h). During final inspection cylinders number one and two and piston number one were found to be scratched.

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1249**.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



John Deere 2840 Diesel