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## Test 1327: John Deere 1050 Diesel 8-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1327 — JOHN DEERE 1050 DIESEL 8 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—574 rpm)								
33.41 (24.91)	2400	2.206 (8.351)	0.464 (0.282)	15.14 (2.983)	211 (99.6)	52 (11.2)	75 (23.8)	29.203 (98.615)
Standard Power Take-off Speed (540 rpm)—One Hour								
* 33.42 (24.92)	2258	2.161 (8.181)	0.454 (0.276)	15.46 (3.046)	216 (102.1)	52 (11.1)	75 (24.0)	29.180 (98.536)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
29.43 (21.95)	2488	2.005 (7.588)	0.478 (0.291)	14.68 (2.892)	205 (96.1)	52 (11.1)	76 (24.2)	..... .....
0.00 (0.00)	2584	0.645 (2.433)	..... .....	..... .....	166 (74.4)	52 (10.8)	76 (24.2)	..... .....
15.09 (11.25)	2550	1.282 (4.854)	0.597 (0.363)	11.77 (2.318)	177 (80.6)	52 (11.1)	76 (24.4)	..... .....
33.29 (24.83)	2400	2.223 (8.413)	0.469 (0.285)	14.98 (2.951)	211 (99.4)	52 (11.1)	76 (24.2)	..... .....
7.60 (5.67)	2569	0.936 (3.543)	0.865 (0.526)	8.12 (1.599)	169 (76.1)	52 (10.8)	75 (23.9)	..... .....
22.33 (16.65)	2516	1.628 (6.164)	0.512 (0.311)	13.72 (2.702)	188 (86.7)	52 (11.1)	75 (23.9)	..... .....
Av 17.96 Av (13.39)	2518	1.453 (5.501)	0.568 (0.346)	12.36 (2.434)	186 (85.6)	52 (11.0)	75 (24.1)	29.167 (98.491)

## DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

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 6th Gear											
27.25 (20.32)	1938 (8.62)	5.27 (8.49)	2398	6.40	2.208 (8.359)	0.569 (0.346)	12.34 (2.431)	208 (97.5)	51 (10.3)	68 (19.7)	28.565 (96.460)
75% of Pull at Maximum Power—Ten Hours 6th Gear											
22.46 (16.75)	1498 (6.66)	5.62 (9.05)	2504	4.51	1.873 (7.092)	0.586 (0.356)	11.99 (2.361)	197 (91.5)	57 (13.8)	71 (21.8)	28.568 (96.470)
50% of Pull at Maximum Power—Two Hours 6th Gear											
15.33 (11.43)	997 (4.43)	5.77 (9.28)	2538	3.27	1.514 (5.730)	0.693 (0.422)	10.13 (1.995)	169 (75.8)	45 (7.2)	52 (11.1)	28.820 (97.321)
50% of Pull at Reduced Engine Speed—Two Hours 7th Gear											
15.39 (11.48)	999 (4.44)	5.78 (9.30)	1717	3.18	1.247 (4.719)	0.569 (0.346)	12.35 (2.432)	169 (76.1)	43 (6.1)	51 (10.6)	28.870 (97.490)
MAXIMUM POWER IN SELECTED GEARS											
21.50 (16.03)	3466 (15.42)	2.33 (3.74)	2506	14.96	4th Gear			173 (78.3)	43 (6.1)	49 (9.4)	28.790 (97.220)
27.40 (20.43)	2906 (12.93)	3.54 (5.69)	2400	10.56	5th Gear			205 (96.1)	49 (9.4)	64 (17.8)	28.630 (96.679)
28.15 (20.99)	2002 (8.91)	5.27 (8.49)	2401	6.51	6th Gear			205 (95.8)	47 (8.3)	61 (16.1)	28.690 (96.882)
27.76 (20.70)	1302 (5.79)	7.99 (12.87)	2401	4.14	7th Gear			205 (95.8)	49 (9.4)	65 (18.3)	28.600 (96.578)
LUGGING ABILITY IN 6th GEAR											
Crankshaft Speed rpm				2401	2154	1919	1678	1428	1200		
Pull—lbs (kN)				2002 (8.91)	2296 (10.21)	2487 (11.06)	2510 (11.17)	2384 (10.60)	2215 (9.85)		
Increase in Pull %				0	15	24	25	19	11		
Power—Hp (kW)				28.15 (20.99)	28.60 (21.33)	27.37 (20.41)	24.13 (18.00)	19.60 (14.62)	15.43 (11.50)		
Speed—Mph (km/h)				5.27 (8.49)	4.67 (7.52)	4.13 (6.64)	3.61 (5.80)	3.08 (4.96)	2.61 (4.20)		
Slip %				6.51	7.81	8.45	8.66	8.03	7.49		

Department of Agricultural Engineering

Dates of Test: October 8-12, 1979

Manufacturer: YANMAR DIESEL CO. LTD.,  
Osaka, Japan

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel  
Cetane No. 49.0 (rating taken from oil company's  
typical inspection data) **Specific gravity converted**  
**to 60°60° (15°/15°)** 0.8430 **Fuel weight** 7.019 lbs/  
gal (0.841 kg/l) **Oil SAE 30 API service classification**  
SD-CC/CD **To motor** 1.551 gal (5.870 l)  
**Drained from motor** 1.490 gal (5.640 l) **Transmission**  
and final drive lubricant John Deere Hy  
Gard **Total time engine was operated** 37.0 hours.

**ENGINE:** Make Yanmar Diesel Type three  
cylinder vertical with turbocharger **Serial No.**  
3T90TJ80156 **Crankshaft** lengthwise **Rated rpm**  
2400 **Bore and stroke** 3.54" x 3.54" (90 mm x 90  
mm) **Compression ratio** 20.4 to 1 **Displacement**  
105 cu in (1717 ml) **Starting system** 12 volt **Lubri-**  
**cation pressure** Air cleaner two paper elements  
**Oil filter** one paper cartridge **Fuel filter** one  
paper element **Muffler** vertical **Cooling medium**  
temperature control one thermostat.

**CHASSIS:** Type Four-wheel drive **Serial No.**  
1050S-001772 **Tread width** rear 51" (1300 mm) to  
75" (1900 mm) front 49" (1250 mm) **Wheel base** 69"  
(1750 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 28.9"  
(735 mm) Vertical distance above roadway 28.4"  
(720 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 **Advertised speeds mph**  
**(km/h)** first 0.9 (1.4) second 1.2 (2.0) third 1.8 (2.9)  
fourth 2.7 (4.3) fifth 4.0 (6.5) sixth 5.7 (9.2) seventh  
8.5 (13.6) eighth 12.5 (20.1) reverse 1.2 (2.0), 5.7  
(9.2) **Clutch** single dry disc operated by foot pedal  
**Brakes** internal expanding shoe operated by two  
foot pedals which can be locked together **Steering**  
mechanical **Turning radius** (on concrete surface  
with brake applied) right 100.4" (2.55 m) left 100.4"  
(2.55 m) (on concrete surface without brake) right  
108.3" (2.75 m) left 108.7" (2.76 m) **Turning space**  
**diameter** (on concrete surface with brake applied)  
right 207.8" (5.28 m) left 207.8" (5.28 m) (on con-  
crete surface without brake) right 223.6" (5.68 m)  
left 224.4" (5.70 m) **Power take-off** 540 rpm at  
2258 engine rpm.

**REPAIRS and ADJUSTMENTS:** No repairs or  
adjustments.

**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  
135°F (57.3°C). Four gears were chosen between  
15% slip and 10 mph (16.1 km/h).

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	90.0	89.0
75% of Pull at Maximum Power—Ten Hours	—	89.5
50% of Pull at Maximum Power—Two Hours	—	89.0
50% of Pull at Reduced Engine Speed—Two Hours	—	86.5
Bystander in 8th gear	—	79.5

### DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption gal/hr - (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Temp. °F (°C) Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Available Power—Two Hours 6th Gear</b>											
27.31 (20.37)	1887 (8.39)	5.43 (8.74)	2401	4.76	2.173 (8.224)	0.558 (0.340)	12.57 (2.476)	208 (97.8)	52 (11.1)	69 (20.6)	28.495 (96.223)

### MAXIMUM POWER IN SELECTED GEARS

25.03 (18.66)	4033 (17.94)	2.33 (3.74)	2475	14.77	4th Gear			184 (84.2)	43 (6.1)	49 (9.4)	28.790 (97.220)
28.49 (21.25)	1973 (8.78)	5.42 (8.72)	2400	4.99	6th Gear			206 (96.4)	49 (9.4)	64 (17.8)	28.660 (96.781)

### TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
<b>Rear Tires</b>	—No., size, ply & psi (kPa)	Two 13.6-28; 4; 14 (95)	Two 13.6-28; 4; 14 (95)
	—Liquid (each)	None	None
	—Cast Iron (each)	315 lb (143 kg)	None
<b>Front Tires</b>	—No., size, ply & psi (kPa)	Two 7-16; 4; 22 (150)	Two 7-16; 4; 22 (150)
	—Liquid (each)	None	None
	—Cast Iron (each)	50 lb (23 kg)	None
<b>Height of Drawbar</b>		16 in (405 mm)	16 in (405 mm)
<b>Static Weight with Operator—Rear</b>		2680 lb (1216 kg)	2050 lb (930 kg)
		—Front	1360 lb (617 kg)
		—Total	4140 lb (1878 kg)

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1327.

L. I. LEVITICUS  
Engineer-in-Charge

G. W. STEINBRUEGGE  
W. E. SPLINTER  
K. VON BARGEN

Board of Tractor Test Engineers



John Deere 1050 Diesel

The Agricultural Experiment Station  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
H. W. Ottoson, Director