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Test 1504: John Deere 750 Diesel 8-Speed

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NEBRASKA TRACTOR TEST 1504 — JOHN DEERE 750 DIESEL 8 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp *(kW)*	Crank shaft speed rpm	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temperature °F *(°C)* Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg *(kPa)*
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—565 rpm)								
18.54 *(13.83)*	2400	1.249 *(4.728)*	0.471 *(0.287)*	14.84 *(2.925)*	196 *(91.1)*	64 *(17.6)*	75 *(24.0)*	28.940 *(97.726)*
Standard Power Take-off Speed (540 rpm) — One hour)								
19.80 *(14.76)*	2295	1.314 *(4.974)*	0.465 *(0.283)*	15.06 *(2.967)*	199 *(92.7)*	64 *(17.7)*	75 *(23.7)*	28.955 *(97.777)*
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
16.14 *(12.04)*	2458	1.127 *(4.266)*	0.489 *(0.297)*	14.32 *(2.822)*	187 *(86.1)*	63 *(17.2)*	75 *(23.9)*	....
0.00 *(0.00)*	2568	0.433 *(1.639)*	....	....	159 *(70.6)*	64 *(17.5)*	74 *(23.6)*	....
8.23 *(6.14)*	2516	0.772 *(2.922)*	0.656 *(0.399)*	10.67 *(2.101)*	166 *(74.7)*	63 *(17.2)*	74 *(23.6)*	....
18.84 *(14.05)*	2399	1.264 *(4.785)*	0.470 *(0.286)*	14.90 *(2.936)*	192 *(89.2)*	63 *(17.2)*	75 *(23.9)*	....
4.17 *(3.11)*	2542	0.600 *(2.271)*	1.007 *(0.613)*	6.95 *(1.369)*	162 *(72.2)*	64 *(17.5)*	75 *(23.9)*	....
12.20 *(9.10)*	2481	0.934 *(3.536)*	0.536 *(0.326)*	13.06 *(2.574)*	172 *(77.8)*	62 *(16.9)*	74 *(23.3)*	....
Av 9.93	**2494**	**0.855**	**0.603**	**11.61**	**173**	**63**	**75**	**28.970**
Av (7.40)		***(3.237)***	***(0.367)***	***(2.286)***	***(78.4)***	***(17.3)***	***(23.7)***	***(97.827)***

DRAWBAR PERFORMANCE

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)*	Temp. °F *(°C)* Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 7th Gear											
15.30 *(11.41)*	895 *(3.98)*	6.41 *(10.32)*	2399	5.98	1.226 *(4.640)*	0.561 *(0.341)*	12.48 *(2.459)*	180 *(81.9)*	57 *(13.6)*	61 *(15.8)*	28.785 *(97.203)*
75% of Pull at Maximum Power—Ten Hours 7th Gear											
12.09 *(9.01)*	691 *(3.07)*	6.56 *(10.55)*	2449	5.75	1.048 *(3.967)*	0.607 *(0.369)*	11.53 *(2.272)*	171 *(76.9)*	51 *(10.6)*	52 *(11.1)*	28.750 *(97.084)*
50% of Pull at Maximum Power—Two Hours 7th Gear											
8.44 *(6.29)*	461 *(2.05)*	6.87 *(11.06)*	2494	3.04	0.858 *(3.248)*	0.712 *(0.433)*	9.83 *(1.937)*	170 *(76.7)*	60 *(15.3)*	66 *(18.6)*	28.720 *(96.983)*
50% of Pull at Reduced Engine Speed—Two Hours 8th Gear											
8.46 *(6.31)*	461 *(2.05)*	6.88 *(11.07)*	1543	2.99	0.672 *(2.545)*	0.556 *(0.338)*	12.58 *(2.478)*	171 *(76.9)*	58 *(14.2)*	62 *(16.4)*	28.710 *(96.949)*
MAXIMUM POWER IN SELECTED GEARS											
13.45 *(10.03)*	1661 *(7.39)*	3.04 *(4.89)*	2432	14.76	5th Gear			173 *(78.3)*	52 *(11.1)*	54 *(12.2)*	28.820 *(97.321)*
15.30 *(11.41)*	1369 *(6.09)*	4.19 *(6.75)*	2399	9.96	6th Gear			175 *(79.4)*	52 *(11.1)*	54 *(12.2)*	28.820 *(97.321)*
15.73 *(11.73)*	921 *(4.09)*	6.41 *(10.31)*	2399	6.03	7th Gear			181 *(82.8)*	58 *(14.4)*	62 *(16.7)*	28.780 *(97.186)*

LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2399	2155	1916	1680	1433	1193
Pull—lbs *(kN)*	921 *(4.09)*	1136 *(5.05)*	1254 *(5.58)*	1337 *(5.95)*	1287 *(5.72)*	1187 *(5.28)*
Increase in Pull %	0	23	36	45	40	29
Power—Hp *(kW)*	15.73 *(11.73)*	17.14 *(12.78)*	16.65 *(12.42)*	15.42 *(11.50)*	12.70 *(9.47)*	9.84 *(7.33)*
Speed—Mph *(km/h)*	6.41 *(10.31)*	5.66 *(9.11)*	4.98 *(8.02)*	4.32 *(6.96)*	3.70 *(5.95)*	3.11 *(5.00)*
Slip %	6.03	7.60	8.54	9.46	9.13	8.29

Department of Agricultural Engineering

Dates of Test: October 31 to November 10, 1983

Manufacturer: YANMAR DIESEL ENGINE COMPANY, LTD., Osaka, Japan

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°)*** 0.8406 **Fuel weight** 6.999 lbs/gal *(0.839 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, CC, SD **To motor** 0.848 gal *(3.209 l)* **Drained from motor** 0.715 gal *(2.707 l)* **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic oil **Total time engine was operated** 37.0 hours.

ENGINE: Make Yanmar Diesel **Type** three cylinder vertical **Serial No.** *CH3043D006271* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.15″ × 3.35″ *(80 mm × 85 mm)* **Compression ratio** 22.5 to 1 **Displacement** 78.2 cu in *(1281 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element **Oil filter** one full flow paper cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** *CH750S007229* **Tread width** rear 35.0″ *(889 mm)* to 39.0″ *(991 mm)* front 35.4″ *(900 mm)* **Wheel base** 61.0″ *(1550 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 24.5″ *(622 mm)* Vertical distance above roadway 26.3″ *(668 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 0.8 *(1.3)* second 1.1 *(1.8)* third 1.6 *(2.6)* fourth 2.6 *(4.2)* fifth 3.6 *(5.8)* sixth 4.8 *(7.7)* seventh 7.0 *(11.3)* eighth 11.4 *(18.3)* reverse 0.9 *(1.4)*, 3.9 *(6.2)* **Clutch** single dry disc operated by foot pedal **Brakes** drum and shoe operated by two foot pedals which can be locked together **Steering** mechanical **Turning radius** (on concrete surface with brake applied) right 86.5″ *(2.2 m)* left 86.5″ *(2.2 m)* (on concrete surface without brake) right 94.5″ *(2.4 m)* left 94.5″ *(2.4 m)* **Turning space diameter** (on concrete surface with brake applied) right 177″ *(4.5 m)* left 177″ *(4.5 m)* (on concrete surface without brake) right 193″ *(4.9 m)* left 193″ *(4.9 m)* **Power take-off** 540 rpm at 2295 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	89.5
75% of Pull at Maximum Power—Ten Hours	88.5
50% of Pull at Maximum Power—Two Hours	88.0
50% of Pull at Reduced Engine Speed—Two Hours	85.5
Bystander in 8th gear	75.5

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Two 9.5-24; 4; 12 *(85)*	Two 9.5-24; 4; 12 *(85)*
Ballast	—Liquid (each)	None	None
	—Test Equip (each)	60 lb *(27 kg)*	None
Front Tires	—No., size, ply & psi *(kPa)*	Two 4.00-15; 4; 52 *(360)*	Two 4.00-15; 4; 52 *(360)*
Ballast	—Liquid (each)	None	None
	—Test Equip (each)	18 lb *(8 kg)*	None
Height of Drawbar		13 in *(330 mm)*	13 in *(330 mm)*
Static Weight with Operator	—Rear	1385 lb *(628 kg)*	1265 lb *(574 kg)*
	—Front	765 lb *(347 kg)*	730 lb *(331 kg)*
	—Total	2150 lb *(975 kg)*	1995 lb *(905 kg)*

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 143°F *(61.8°C)*. Three 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 No. **1504.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

John Deere 750 Diesel

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