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University of Nebraska - Lincoln

Year 1973

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Test 1146: John Deere 830 Diesel

Tractor Museum

University of Nebraska-Lincoln, [TractorMuseumArchives@unl.edu](mailto:TractorMuseumArchives@unl.edu)

# NEBRASKA TRACTOR TEST 1146 – JOHN DEERE 830 DIESEL

## POWER TAKE-OFF PERFORMANCE

Hp	Crankshaft speed rpm	Fuel Consumption		Hp-hr per gal	Temperature Degrees F			Barometer inches of Mercury
		Gal per hr	Lb per hp-hr		Cooling medium	Air wet bulb	Air dry bulb	
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>								
<b>Rated Engine Speed—Two Hours (PTO Speed—625 rpm)</b>								
35.30	2401	2.472	0.484	14.28	173	63	74	29.090
<b>Standard Power Take-off Speed (540 rpm)—One Hour</b>								
32.62	2076	2.213	0.469	14.74	172	64	75	29.085
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
30.48	2440	2.143	0.486	14.22	171	62	72	.....
0.00	2540	0.854	.....	.....	165	62	73	.....
15.50	2482	1.457	0.650	10.64	168	62	72	.....
35.36	2403	2.503	0.490	14.13	173	62	72	.....
7.92	2536	1.132	0.989	7.00	166	61	71	.....
23.02	2457	1.787	0.537	12.88	169	61	72	.....
Av 18.71	2476	1.646	0.608	11.37	169	62	72	29.090

## DRAWBAR PERFORMANCE

Hp	Drawbar pull lbs	Speed miles per hr	Crankshaft speed rpm	Slip of drivers %	Fuel Consumption		Hp-hr per gal	Temp Degrees F			Barometer inches of Mercury
					Gal per hr	Lb per hp-hr		Cooling med	Air wet bulb	Air dry bulb	

### VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST

<b>Maximum Available Power—Two Hours—5th Gear</b>											
28.02	2028	5.18	2398	4.54	2.367	0.584	11.84	185	55	70	29.090
<b>75% of Pull at Maximum Power—Ten Hours—5th Gear</b>											
22.16	1550	5.36	2448	3.26	2.010	0.627	11.03	184	59	64	28.980
<b>50% of Pull at Maximum Power—Two Hours—5th Gear</b>											
15.44	1059	5.47	2469	3.04	1.699	0.761	9.09	186	61	75	28.960
<b>50% of Pull at Reduced Engine Speed—Two Hours—6th Gear</b>											
15.57	1067	5.48	1729	2.10	1.319	0.586	11.80	179	67	73	29.020
<b>MAXIMUM POWER WITH BALLAST</b>											
19.56	4252	1.72	2451	14.94	2nd Gear	.....	183	57	71	29.070	
27.05	3879	2.61	2401	10.94	3rd Gear	.....	185	57	71	29.080	
28.26	2763	3.84	2401	6.59	4th Gear	.....	184	59	71	29.080	
28.46	2057	5.19	2401	4.59	5th Gear	.....	184	59	71	29.080	
28.02	1396	7.53	2399	3.04	6th Gear	.....	184	59	71	29.080	
24.83	822	11.33	2402	1.68	7th Gear	.....	183	59	71	29.080	

### VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST 5th Gear

Pounds Pull	2057	2167	2259	2368	2519	2511
Horsepower	28.46	26.89	24.87	22.61	20.58	17.15
Crankshaft Speed rpm	2401	2162	1923	1674	1438	1202
Miles Per Hour	5.19	4.65	4.13	3.58	3.06	2.56
Slip of Drivers %	4.59	4.88	5.21	5.44	5.99	5.88

### TRACTOR SOUND LEVEL

	DB (A)
Maximum Available Power 2 Hours	97.0
75% of Pull at Max. Power 10 Hours	97.0
50% of Pull at Max. Power 2 Hours	96.5
50% of Pull at Reduced Engine Speed 2 Hours	92.5
Bystander 8th Gear	85.5

### TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b>	Two 13.6-28;4;14	Two 13.6-28;4;14
Ballast	—No, size, ply & psi —Liquid Cast Iron	Two 13.6-28;4;14 509 lb each 80 lb each None
<b>Front Tires</b>	Two 6.50-16;6;28	Two 6.50-16;6;28
Ballast	—No, size, ply & psi —Liquid Cast Iron	Two 6.50-16;6;28 None 80 lb each None
<b>Height of Drawbar</b>	13 inches	13½ inches
<b>Static weight with operator—Rear</b>	3896 lb	2718 lb
Front	1818 lb	1658 lb
Total	5714 lb	4376 lb

Department of Agricultural Engineering

Dates of Test: October 13 to October 19, 1973

Manufacturer: JOHN DEERE WERKE MANNHEIM, MANNHEIM, WEST GERMANY

**FUEL, OIL AND TIME** Fuel No 2 Diesel Cetane No 50.1 (rating taken from oil company's typical inspection data Specific gravity converted to 60°/60° 0.8308 Weight per gallon 6.917 lb Oil SAE 30 API service classification CD CC SD To motor 1.410 gal Drained from motor 1.385 gal Transmission and final drive lubricant John Deere type 303 oil Total time engine was operated 46½ hours.

**ENGINE** Make John Deere Diesel Type 3 cylinder vertical Serial No 114850CD Crankshaft Mounted lengthwise Rated rpm 2400 Bore and stroke 3.86" x 4.33" Compression ratio 17.2 to 1 Displacement 152 cu in Cranking system 12 volt electric Lubrication pressure Air cleaner Dry type with replaceable pleated paper element Oil filter full flow with replaceable paper screw-on cartridge Fuel filter replaceable two stage paper cartridge Muffler was used Cooling medium temperature control thermostat.

**CHASSIS** Type standard Serial No 112451L Tread width rear 53" to 73" front 49" to 79" Wheel base 74.4" Center of gravity (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 28.2" Vertical distance above roadway 30.3" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive Transmission selective gear fixed ratio Advertised speeds mph first 1.4 second 2.0 third 2.9 fourth 4.1 fifth 5.4 sixth 7.7 seventh 11.4 eighth 15.9 Reverse 1.6, 2.3, 3.4, 4.7 Clutch single plate dry disc in combination with PTO clutch operated by single foot pedal Brakes wet disc hydraulically operated by two foot pedals which can be locked together Steering mechanical with power assist Turning radius (on concrete surface with brake applied) right 110" left 110" (on concrete surface without brake) right 122" left 122" Turning space diameter (on concrete surface with brake applied) right 244" left 244" (on concrete surface without brake) right 268" left 268" Belt pulley 967 rpm at 2100 engine rpm diam 12" face 8½" Belt speed 3038 fpm Power take-off 546 rpm at 2100 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.

First gear was not run as it was necessary to limit the pull in second gear to avoid excessive wheel slippage.

Eighth gear was not run as test procedure requires only six travel speeds.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1146.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers

The University of Nebraska Agricultural Experiment Station

H. W. Ottoson, Director and Acting Dean