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January 1954

## Test 528: John Deere Model 70 (Diesel)

Tractor Museum

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Department of Agricultural Engineering  
Dates of test: October 19 to October 22, 1954  
Manufacturer: JOHN DEERE WATERLOO TRACTOR WORKS OF DEERE MANUFACTURING COMPANY, WATERLOO, IOWA  
Manufacturer's rating: Not rated

NEBRASKA TRACTOR TEST NO. 528

JOHN DEERE 70 DIESEL

**BELT HORSEPOWER TESTS**

Hp	Crank shaft speed rpm	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer inches of mercury		
		Gal per hour	Hp-hr per gal	Lb per hp-hour		Cooling med	Air			
<b>TESTS B &amp; C—100% MAXIMUM LOAD—TWO HOURS</b>										
50.40	1125	2.841	17.74	0.397	0.00	155	50	29.003		
<b>TEST D—RATED LOAD—ONE HOUR</b>										
44.14	1126	2.491	17.72	0.398	0.00	153	49	28.975		
<b>TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)</b>										
44.06	1125	2.487	17.72	0.398	...	154	49	.....		
3.03	1242	0.830	3.65	1.931	...	143	49	.....		
23.14	1182	1.559	14.84	0.475	...	148	49	.....		
49.73	1114	2.823	17.62	0.400	...	160	48	.....		
11.84	1209	1.120	10.57	0.666	...	146	48	.....		
33.82	1157	2.010	16.83	0.419	...	152	49	.....		
27.60	1171	1.805	15.29	0.461	0.00	151	49	28.975		
<b>TORQUE (At Dynamometer)</b>										
Eng rpm.	1123	1073	1019	970	916	867	816	770	716	668
Lb-ft.	259.4	295.1	302.8	309.8	313.3	314.1	314.1	318.5	319.4	316.8
Dyn rpm.	1019	969	918	871	820	772	724	680	630	584

**DRAWBAR HORSEPOWER TESTS**

Hp	Draw bar pull lb	Speed miles per hr	Crank shaft speed rpm	Slip of drive wheels %	Fuel Consumption			Water used gal per hour	Temp Deg F		Barometer inches of mercury
					Gal per hour	Hp-hr per gal	Lb per hp-hr		Cooling med	Air	
<b>TESTS F &amp; G—100% MAXIMUM LOAD</b>											
36.08	6189	2.19	1125	15.85	.....	Not Recorded	.....	135	56	29.150	
44.50	4941	3.38	1125	8.35	.....	Not Recorded	.....	160	53	29.005	
44.57	3687	4.53	1125	5.86	.....	Not Recorded	.....	160	53	29.005	
45.09	2589	6.53	1124	4.30	.....	Not Recorded	.....	158	53	29.005	
44.04	1840	8.98	1126	3.05	.....	Not Recorded	.....	156	50	28.990	
42.71	1243	12.88	1126	1.55	.....	Not Recorded	.....	158	53	28.990	
<b>TEST H—RATED LOAD—TEN HOURS—3rd Gear</b>											
34.79	2831	4.61	1125	4.33	2.204	15.78	0.446	0.00	154	61	28.991
<b>TEST J—OPERATING MAXIMUM LOAD—3rd Gear</b>											
42.42	3584	4.44	1126	7.50	.....	Not Recorded	.....	158	55	29.180	
<b>TEST K—OPERATING MAXIMUM LOAD—3rd Gear</b>											
41.15	3745	4.12	1125	11.56	.....	Not Recorded	.....	157	60	29.180	

**TIRES, WHEELS AND WEIGHT**

	Tests F, G, & H	Test J	Test K
<b>Rear wheels</b>			
Type	Cast iron	Cast iron	Cast iron
Liquid ballast	800 lb each	None	None
Added cast iron	140 lb each	None	None
<b>Rear tires</b>			
No. and size	Two 13-38	Two 13-38	Two 12-38
Ply	6	6	6
Air pressure	16 lb	12 lb	12 lb
<b>Front wheels</b>			
Type	Pressed steel	Pressed steel	Pressed steel
Liquid ballast	None	None	None
Added cast iron	None	None	None
<b>Front tires</b>			
No. and size	Two 6.00-16	Two 6.00-16	Two 6.00-16
Ply	4	4	4
Air pressure	28 lb	28 lb	28 lb
<b>Height of drawbar</b>	18½ inches	19 inches	18 inches
<b>Static weight</b>			
Rear end	6683 lb	4803 lb	4754 lb
Front end	2170 lb	2159 lb	2150 lb
<b>Total weight as tested with operator</b>	9028 lb	7137 lb	7079 lb

**FUEL, OIL and TIME** Diesel Fuel Cetane No. 50 (rating taken from oil company's typical inspection data): Weight per gallon 7.045 lb OIL SAE 20: to motor 2.434 gal; drained from motor 2.311 gal Total time motor was operated 44 hours.

**CHASSIS** Type Tricycle Serial No. 7017500 Tread width rear 60" to 88" front 8 5/16" and 12 1/16" Wheel base 91" Hydraulic control system direct engine drive with throw out lever Advertised speeds mph first 2.5 second 3.5 third 4.5 fourth 6.5 fifth 8.75 sixth 12.5 reverse 3.25 Belt pulley diam. 12 7/8" face 7 3/8" rpm 1125 Belt speed 3792 fpm Clutch multiple dry disc operated by hand lever Seat upholstered seat with back rest Brakes internal expanding shoe operated by two foot pedals Equalized no Power take-off direct engine drive with independent clutch Steering aided by hydraulic power steering.

**ENGINE** Make John Deere Diesel Type 2 cylinder horizontal Serial No. 7017500 Crankshaft mounted crosswise Head I Lubrication pressure Bore and stroke 6 1/8" x 6 3/8" Rated rpm 1125 Compression ratio 16 to 1 Displacement 376 cu. in. Port diameter valves inlet 2.062 exhaust 1.653 Governor variable speed centrifugal Ignition system battery Starting system 6 volt battery Air cleaner oil washed wire mesh Muffler was used Oil filter replaceable impregnated paper element Cooling medium temperature control thermostat Fuel filter brass wire screen in sediment bowl and 2 replaceable impregnated paper elements.

**STARTING ENGINE** Make John Deere Type 4 cylinder "V" Bore and stroke 2" x 1 1/2" Displacement 18.85 cu in Rated rpm 5500 Ignition battery Starter 6 volt-battery.

**REPAIRS AND ADJUSTMENTS** No repairs or adjustments.

**REMARKS** All test results were determined from observed data and without allowances, additions or deductions. Tests B and F were made with fuel pumps as set by the manufacturer and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, H, J & K were made with the same setting.

**HORSEPOWER SUMMARY**

	Drawbar	Belt
1. Sea level (calculated) maximum horsepower (based on 60°F and 29.92" HG)	45.66	51.49
2. Observed maximum horsepower (tests F and B)	44.57	50.40
3. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly ASAE and SAE ratings)	34.25	43.77

We, the undersigned, certify that this is a true and correct report of official tractor test No. 528.

L. F. LARSEN  
Engineer-in-charge

C. W. SMITH  
L. W. HURLBUT  
F. D. YUNG  
Board of Tractor Test Engineers