

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

---

January 1955

## Test 540: John Deere Model 50 LP

Nebraska Tractor Test Lab

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

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

---

Nebraska Tractor Test Lab, "Test 540: John Deere Model 50 LP" (1955). *Nebraska Tractor Tests*. 1035.  
<https://digitalcommons.unl.edu/tractormuseumlit/1035>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Department of Agricultural Engineering

Dates of test: May 9 to May 13, 1955

Manufacturer: JOHN DEERE WATERLOO TRACTOR WORKS OF DEERE MANUFACTURING COMPANY, WATERLOO, IOWA

Manufacturer's rating: Not rated

NEBRASKA TRACTOR TEST NO. 540

JOHN DEERE 50 LP

### 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			
TEST B—100% MAXIMUM LOAD—TWO HOURS										
31.20	1250	3.620	8.62	0.493	0.00	165	65	29.050		
TEST C—OPERATING MAXIMUM LOAD—ONE HOUR										
30.18	1250	3.306	9.13	0.466	0.00	162	60	29.030		
TEST D—RATED LOAD—ONE HOUR										
27.61	1250	3.056	9.03	0.470	0.00	161	60	29.030		
TEST E—VARYING LOAD—TWO HOURS (20 minute runs; last line average)										
27.69	1252	3.064	9.04	0.470	...	161	60	...		
1.53	1309	1.186	1.29	3.294	...	144	60	...		
14.21	1283	2.061	6.89	0.616	...	150	60	...		
28.94	1201	3.198	9.05	0.470	...	161	60	...		
7.02	1293	1.504	4.67	0.910	...	149	59	...		
21.05	1269	2.513	8.38	0.507	...	158	64	...		
16.74	1268	2.254	7.43	0.572	0.00	154	60	29.020		
TORQUE (At Dynamometer)										
Eng rpm	1248	1181	1117	1048	982	916	852	779	726	660
Lb-ft	185.5	184.8	188.5	194.3	198.6	199.9	199.3	189.0	178.5	166.8
Dyn rpm	853	808	764	717	669	624	579	538	491	449

### 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	
TEST H—RATED LOAD—TEN HOURS—4th Gear											
22.13	1858	4.47	1251	5.12	2.828	7.83	0.543	0.00	161	65	28.903
TEST F—100% MAXIMUM LOAD											
28.11	2389	4.41	1250	6.07	4th gear.....				165	69	29.050
TEST G—OPERATING MAXIMUM LOAD											
12.59	3466	1.36	1253	16.30	1st gear (Part Throttle)....				157	75	29.003
20.44	3480	2.20	1253	16.96	2nd gear (Part Throttle)....				160	74	29.000
27.10	3068	3.31	1251	9.43	3rd gear.....				164	70	29.030
26.90	2274	4.44	1252	5.81	4th gear.....				161	71	29.030
27.55	1819	5.68	1250	4.50	5th gear.....				163	70	29.020
26.34	956	10.33	1250	2.39	6th gear.....				161	70	29.020
TEST J—OPERATING MAXIMUM LOAD											
26.15	2223	4.41	1252	6.57	4th gear.....				160	72	28.850
TEST K—OPERATING MAXIMUM LOAD											
26.31	2324	4.25	1253	7.12	4th gear.....				158	70	28.830

### TIRES, WHEELS AND WEIGHT

	Tests F, G, & H	Test J	Test K
Rear wheels			
Type	Cast iron	Cast iron	Cast iron
Liquid ballast	187 lb each	None	None
Added cast iron	None	None	None
Rear tires			
No. and size	Two 11-38	Two 11-38	Two 10-38
Ply	4	4	4
Air pressure	12 lb	12 lb	12 lb
Front wheels			
Type	Pressed steel	Pressed steel	Pressed steel
Liquid ballast	None	None	None
Added cast iron	None	None	None
Front tires			
No. and size	Two 5.50-16	Two 5.50-16	Two 5.50-16
Ply	4	4	4
Air pressure	28 lb	28 lb	28 lb
Height of drawbar	18 inches	18½ inches	17 inches
Static weight			
Rear end	4010 lb	3636 lb	3584 lb
Front end	1460 lb	1478 lb	1460 lb
Total weight as tested with operator	5645 lb	5289 lb	5219 lb

FUEL, OIL and TIME Commercial Propane Octane No. 100 (rating taken from oil company's typical inspection data): weight per gallon 4.25 lb OIL SAE 20; to motor 1.476 gal drained from motor 1.026 gal Total time motor was operated 39 hours.

CHASSIS Type Tricycle Serial No. 5024461 Tread width rear 56" to 88" front 7 5/16" and 11 3/16" Wheel base 90" Hydraulic control system direct engine drive with throw out lever Advertised speeds mph first 1½ second 2½ third 3½ fourth 4½ fifth 5½ sixth 10 reverse 2½ Belt pulley diam 9 11/16" face 7¼" rpm 1250 Belt speed 3170 fpm Clutch dry double 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 Type 2-cylinder horizontal Serial No. 5024461 Crankshaft mounted cross-wise Head I Lubrication pressure Bore and stroke 4 11/16" x 5½" Rated rpm 1250 Compression ratio 8 to 1 Displacement 190.4 cu. in. Port diameter valves inlet 1 9/16" exhaust 1½" Governor variable speed centrifugal Carburetor size 1½" Ignition system battery Starting system 2-6 volt batteries Air cleaner Oil washed wire mesh Muffler was used Oil filter replaceable impregnated paper element Cooling medium temperature control thermostat.

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 carburetor set for 100% maximum belt horsepower 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 and K were made with an operating setting of the carburetor (selected by the manufacturer) of 96.3% of maximum belt horsepower.

### HORSEPOWER SUMMARY

	Drawbar	Belt
1. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" HG)	29.20	32.29
2. Observed maximum horsepower (Tests F and B)	28.11	31.20
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)	21.90	27.45

We, the undersigned, certify that this is a true and correct report of official tractor test No. 540.

L. F. LARSEN  
Engineer-in-Charge

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