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January 1950

## Test 441: McCormick-Deering WD-9

Nebraska Tractor Test Museum Submitted by Larsen Museum  
*University of Nebraska-Lincoln*

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NEBRASKA TRACTOR TEST NO. 441, McCORMICK-DEERING WD-9

Department of Agricultural Engineering, University of Nebraska  
 Dates of test: May 31 to June 7, 1950  
 Manufacturer: INTERNATIONAL HARVESTER COMPANY, CHICAGO, ILLINOIS  
 Manufacturer's rating: Not rated

BELT HORSEPOWER TESTS

Hp	Crank shaft speed rpm	Fuel consumption			Water used Gal per hr	Temp deg F		Barometer in Hg
		Gal per hr	Hp hr per gal	Lb per hp hour		Cooling med	Air	
TEST B and C - 100% MAXIMUM LOAD - TWO HOURS								
51.27	1500	3.508	14.62	0.478	0.02	175	64	28.920
TEST D - RATED LOAD - ONE HOUR								
45.36	1501	3.153	14.39	0.486	0.02	168	62	28.920
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
45.17	1496	3.130	14.43	0.484	- --	168	61	-- --
1.35	1577	1.176	1.15	6.089	- --	154	60	-- --
23.67	1561	2.112	11.21	0.624	- --	158	60	-- --
49.43	1457	3.357	14.72	0.475	- --	170	60	-- --
11.87	1564	1.614	7.35	0.950	- --	156	62	-- --
34.45	1518	2.580	13.35	0.523	- --	160	60	-- --
27.66	1529	2.328	11.88	0.588	0.01	161	61	28.925

DRAWBAR HORSEPOWER TESTS

Hp	Draw bar pull lbs	Speed miles per hr	Crank shaft speed rpm	Slip of drive wheels %	Fuel Consumption			Water used gal per hr	Temp deg F		Barometer in Hg
					Gal per hour	Hp hr per gal	Lb per hp hr		Cooling med	Air	
TEST F and G - 100% MAXIMUM LOAD											
36.20	6727	2.02	1503	16.64	Not Recorded			169	71	28.765	
43.87	5655	2.91	1504	10.85	Not Recorded			175	77	28.775	
46.02	4018	4.30	1504	6.54	Not Recorded			175	73	28.775	
46.83	3315	5.30	1500	5.15	Not Recorded			175	73	28.775	
39.95	944	15.87	1500	1.44	Not Recorded			172	80	28.775	
TEST H - RATED LOAD - TEN HOURS - 3rd Gear											
36.61	3147	4.36	1498	4.70	2.847	12.86	0.543	0.00	174	84	28.760
TEST J - OPERATING MAXIMUM LOAD - 3rd Gear											
41.34	3821	4.06	1501	13.40	Not Recorded			170	72	28.775	

TIRES, WHEELS and WEIGHT

	Tests F, G, & H	Test J	Test K
<u>Rear wheels</u>			
Type	Cast iron	Cast iron	
Liquid ballast	952 lb each	none	
Added cast iron	930 lb each	none	
<u>Rear tires</u>			
No and size	two 14-34	two 14-34	
Ply	6	6	
Air pressure	16 lb	12 lb	
<u>Front wheels</u>			
Type	Cast iron	Cast iron	
Liquid ballast	none	none	
Added cast iron	none	none	
<u>Front tires</u>			
No and size	two 7.50-18	two 7.50-18	
Ply	6	6	
Air pressure	28 lb	28 lb	
<u>Height of drawbar</u>			
	19 inches	21 inches	
<u>Static weight</u>			
Rear end	8014 lb	4250 lb	
Front end	2786 lb	2786 lb	
<u>Total weight as tested with operator</u>			
	10,985 lb	7,221 lb	

No smaller tires suggested by manufacturer.

FUEL, OIL and TIME Diesel Fuel cetane No. 47 (rating taken from oil company's typical inspection data); weight per gallon 6.988 lb Oil SAE 20; to motor 2.677 gal; drained from motor 2.188 gal Total time motor was operated 45 1/2 hours.

CHASSIS Type standard Serial No. WDCB42216W12B Tread width rear 30" front 52" Wheel Base 83 5/8" Hydraulic control system not available  
Advertised speeds mph first 2 3/8 second 3 1/4 third 4 5/8 fourth 5 5/8 fifth 16 1/4 reverse 3 Belt pulley diam 14" face 8 1/2" rpm 707 Belt speed 2593 fpm Clutch single plate dry Seat pressed steel with canvas covered felt pad Brakes external contracting bands operated by right foot on adjacent pedals either independently or interlocked Equalized by springs when pedals are locked together Power take-off standard type

ENGINE Make McCormick-Deering Type 4 cylinder vertical diesel Serial No WDCBM18744 Crankshaft mounted lengthwise Head I Lubrication pressure Bore and Stroke 4.4" x 5.5" Rated rpm 1500 Compression ratio 15.7 - 1 Displacement 334.5 in<sup>3</sup> Port Diameter Valves inlet 1 21/32" exhaust 1 15/32" Governor variable speed centrifugal Carburetor Size 3/4" (for starting only) Ignition System magneto (for starting only) Starter 12 volt Air Cleaner oil washed wire screen Muffler used Oil Filter partial flow replaceable element Cooling medium temperature control thermostat

REPAIRS AND ADJUSTMENTS Starting control rod bell crank seized on shaft during preliminary belt test. This was corrected and test continued.

REMARKS All test results were determined from observed data and without allowances, additions or deductions. Tests B and F were made with fuel pumps set by the manufacturer to develop approximately 51 observed 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 and J were made with the same setting.

HORSEPOWER SUMMARY

	DRAWBAR	BELT
1. Sea level (calculated) maximum horsepower (based on 60° F and 29.92" hg)	48.45	53.24
2. Observed maximum horsepower (tests F and B)	46.02	51.27
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)	36.34	45.25

We, the undersigned, certify that this is a true and correct report of official tractor test No. 441.

L. F. Larsen  
 Engineer in Charge

C. W. Smith

L. W. Hurlbut

F. D. Yung  
 BOARD OF TRACTOR TEST ENGINEERS