January 1940

Test 353: McCormick-Deering Model W-4 (Gasoline)

Nebraska Tractor Test Lab
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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 353

Dates of test: September 16 to 20, 1940.
Name and model of tractor: McCORMICK-DEERING W-4 (Gasoline)
Manufacturer: International Harvester Company, Chicago, Illinois.
Manufacturer's rating: NOT RATED.

B E L T H O R S E P O W E R T E S T S

H. P.	Crank shaft speed R.P.M.	Fuel Consumption			Water used gal. per hr.	Temp. Deg. F.		Barometer Inches of Mercury
		Gal. per hr.	H. P. hr. per gal.	Lb. per H. P. hr.		Cooling med.	Air	
TEST B - 100% MAXIMUM LOAD - TWO HOURS								
26.21	1650	2.254	11.63	0.532	0.000	192	85	28.775
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
24.30	1651	2.086	11.65	0.531	0.000	193	84	28.790
***TEST D - ONE HOUR**								
23.77	1650	2.058	11.55	0.536	0.000	196	84	28.815
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
23.80	1651	2.065	11.53	0.537	--	196	84	--
1.40	1785	0.935	1.50	4.136	--	199	82	--
12.39	1723	1.464	8.46	0.731	--	200	83	--
23.54	1617	2.045	11.51	0.538	--	195	84	--
6.32	1753	1.144	5.52	1.120	--	197	84	--
16.26	1693	1.798	10.16	0.610	--	198	87	--
14.29	1704	1.575	9.07	0.682	0.000	197	84	28.825

D R A W B A R H O R S E P O W E R T E S T S

H. P.	Draw bar pull pounds	Speed miles per hr.	Crank shaft Speed R.P.M.	Slip on drive wheels %	Fuel Consumption			Water used gal. per hr.	Temp. Deg. F.		Barometer Inches of Mercury
					Gal. per hr.	H.P. hr. per gal.	Lb. per H.P. hr.		Cooling med.	Air	
TEST F - 100% MAXIMUM LOAD - Second - GEAR											
23.97	2957	3.04	1652	7.24	----- Not Recorded ------				193	93	28.815
TEST G - OPERATING MAXIMUM LOAD											
21.12	3671	2.16	1650	10.20	----- Not Recorded ------				191	82	28.930
22.17	2693	3.09	1653	5.80	----- " " ------				195	98	28.800
21.91	2087	3.94	1650	4.76	----- " " ------				193	74	28.900
22.00	1643	5.02	1651	3.47	----- " " ------				194	79	28.910
***TEST H - TEN HOURS - Second - GEAR**											
19.43	2362	3.09	1650	5.75	1.963	9.90	0.625	0.000	193	89	28.900

*Formerly called RATED LOAD; see REMARKS 4, page 3.

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FUEL, OIL, AND TIME

Fuel Gasoline Octane 73 Weight per gallon 6.19 pounds

Oil: S.A.E. No. 20 To motor 1.487 gal. Drained from motor 1.433 gal.

Total time motor was operated 52 hours

BRIEF SPECIFICATIONS

Advertised speeds miles per hour: First 2-3/8 Second 3-1/4

Third 4 Fourth 5-1/8 Fifth 14-3/4 Reverse 2-3/4

Belt pulley: Diam. 9-3/4" Face 7-1/2" R.P.M. 1019 Belt Speed 2600 f.p.m.

Clutch: Make Rockford Type Single plate Operated by foot

Seat Pressed steel with sponge rubber pad

Total weight as tested (with operator) 5850 pounds

MOTOR

Make Own Serial No. WBH 627XI Type 4 cylinder, vertical

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 3-3/8" x 4-1/4" Rated R.P.M. 1650

Port diameter valves: Inlet 1.344" Exhaust 1.217"

Magneto: Make Own Model H-4

Carburetor: Make Own Model D-10 Size 1"

Governor: Make Own Type Variable speed, Centrifugal

Air Cleaner: Make Donaldson Type Oil-washed wire screen filter

Oil Filter: Make Motor Improvements Inc. Type Partial flow with replaceable bakelite impregnated paper element

Cooling medium temperature control: Bishop and Babcock thermostat and Pines radiator shutters

CHASSIS

Type Standard Serial No. WBH 627XI Drive Enclosed gear

Tread width: Rear 52" Front 46"

Rear tires: No. 2 Size 12.75 x 24 - 6 ply Air pressure 16 pounds

Front tires: No. 2 Size 6.00 x 16 - 4 ply Air pressure 25 pounds

Added weight: Per rear wheel (Cast Iron 693 pounds
(Water 324 pounds

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

1. All results shown on page 1 of this report 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, and H were made with an operating setting of the carburetor (selected by the manufacturer) of 92.6% of maximum belt horsepower.

	DRAWBAR	BELT
2. Observed maximum horsepower (tests F & B)	23.97	26.21
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	25.67	27.89
4. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings)	19.25	23.71

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 353.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers