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January 1939

Test 319: M-M Twin City Model UTU (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. 319

Dates of test: June 13 to 17, 1939.

Name and model of tractor: M-M TWIN CITY UTU (Gasoline)

Manufacturer: Minneapolis-Moline Power Implement Company, Minneapolis, Minnesota.

Manufacturer's rating: NOT RATED.

BELT HORSEPOWER TESTS

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.		Cool- ing med.	Air	
TEST B - 100% MAXIMUM LOAD - TWO HOURS								
42.71	1275	4.108	10.40	0.590	0.000	190	78	28.700
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
41.51	1274	3.731	11.13	0.551	0.000	190	78	28.710
*TEST D - ONE HOUR								
38.77	1275	3.662	10.59	0.579	0.000	186	80	28.710
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
38.78	1275	3.670	10.57	0.580	--	186	80	--
1.31	1367	1.512	0.87	7.076	--	167	79	--
19.80	1318	2.618	7.56	0.811	--	170	80	--
40.45	1233	3.656	11.06	0.554	--	189	80	--
10.01	1343	2.046	4.89	1.253	--	168	79	--
29.28	1300	3.245	9.02	0.679	--	175	79	--
23.27	1306	2.791	8.34	0.735	0.000	176	80	28.700

DRAWBAR HORSEPOWER TESTS

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. per gal.	Lb. per H.P. hr.		Cool- ing med.	Air	
TEST F - 100% MAXIMUM LOAD - <u>Third</u> - GEAR											
35.16	3582	3.68	1277	15.41	----- Not Recorded -----				185	88	28.590
TEST G - OPERATING MAXIMUM LOAD											
24.65	4496	2.06	1281	17.52	----- Not Recorded -----				180	91	28.550
32.58	4585	2.66	1279	17.00	----- " " -----				185	90	28.565
35.30	3384	3.91	1275	9.99	----- " " -----				187	87	28.620
36.40	2498	5.46	1278	5.61	----- " " -----				187	86	28.630
*TEST H - TEN HOURS - <u>Third</u> - GEAR											
28.32	2620	4.05	1276	6.80	3.255	8.70	0.705	0.024	191	99	28.560

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

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FUEL, OIL, AND TIME

Fuel Gasoline Octane 70 Weight per gallon 6.13 pounds
Oil: S.A.E. No. 30 To motor 2.211 gal. Drained from motor 1.889 gal.
Total time motor was operated 55 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 2.5 Second 3.2
Third 4.3 Fourth 5.7 Fifth 18.5 Reverse 1.2
Belt pulley: Diam. 15 1/2" Face 7" R.P.M. 733 Belt Speed 2975 f.p.m.
Clutch: Make Twin Disc Type Single plate, dry Operated by hand
Seat Pressed steel

Total weight as tested (with operator) 6773 pounds

MOTOR

Make Own Serial No. 541034 C Type 4 cylinder, vertical
Head I Mounting Crankshaft lengthwise Lubrication Pressure
Bore and stroke 4 1/4" x 5" Rated R.P.M. 1275
Port diameter valves: Inlet 1 1/2" Exhaust 1 3/8"
Magneto: Make Fairbanks-Morse Model FM-4B
Carburetor: Make Schebler Model TTX17 Size 1"
Governor: Make Own Type Centrifugal
Air Cleaner: Make United Type Oil-washed crimped wire
Oil Filter: Make H-W Type Renewable waste element
Cooling medium temperature control: Dole thermostat

CHASSIS

Type Tricycle Serial No. 311150 Drive Enclosed gear
Tread width: Rear 54" - 83" Front: Top 14 1/2" Bottom 8 1/2"
Rear tires: No. 2 Size 11 x 36" - 6 ply Air Pressure 16 pounds
Front tires: No. 2 Size 6.00" x 16" - 4 ply Air Pressure 28 pounds
Added weight: Per rear wheel (Cast Iron 333 pounds
(Water 225 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 97.2% of maximum belt horsepower.

	<u>DRAWBAR</u>	<u>BELT</u>
2. Observed maximum horsepower (tests F & B)	35.16	42.71
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	37.76	45.27
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)	28.32	38.48

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 319.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers