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January 1938

Test 310: M-M Twin City Model UTS (Gasoline)

Tractor Museum

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 310

Dates of test: October 24 to November 16, 1938.

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

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

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.		Cool- ing med.	Air	
TEST B - 100% MAXIMUM LOAD - TWO HOURS								
42.88	1274	4.112	10.43	0.589	0.000	182	75	29.000
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
41.67	1273	3.725	11.19	0.549	0.000	185	80	28.950
*TEST D - ONE HOUR								
38.31	1275	3.733	10.26	0.598	0.000	178	80	28.950
TEST E - VARYING LOAD - TWO HOURS (20. minute runs; last line average)								
38.17	1277	3.733	10.23	0.600	--	178	80	--
1.46	1364	1.578	0.93	6.637	--	152	78	--
19.79	1312	2.629	7.53	0.816	--	154	78	--
40.35	1231	3.708	10.88	0.564	--	178	78	--
10.17	1340	2.028	5.01	1.224	--	158	77	--
29.21	1296	2.985	9.79	0.628	--	159	75	--
23.19	1304	2.777	8.35	0.735	0.000	163	77	28.950

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. per gal.	Lb. per H.P. hr.		Cool- ing med.	Air	
TEST F - 100% MAXIMUM LOAD - Third - GEAR											
39.00	3285	4.45	1276	6.63	----- Not Recorded -----			185	79	28.880	
TEST G - OPERATING MAXIMUM LOAD											
30.02	4959	2.27	1275	16.51	----- Not Recorded -----			161	63	28.940	
37.40	4481	3.13	1276	10.86	----- " " -----			172	71	28.975	
38.12	3195	4.47	1277	6.24	----- " " -----			184	80	28.900	
38.22	2367	6.06	1275	4.38	----- " " -----			177	76	28.865	
*TEST H - TEN HOURS - Third - GEAR											
30.90	2559	4.53	1275	4.96	3.513	8.80	0.698	0.011	160	64	28.890

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

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FUEL, OIL, AND TIME

Fuel Gasoline Octane 70 Weight per gallon 6.14 pounds
Oil: S.A.E. No. 20 To motor 2.707 gal. Drained from motor 2.021 gal.
Total time motor was operated 55 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour (rubber tires): First 2.7 Second 3.5
Third 4.7 Fourth 6.2 Fifth 20.2 Reverse 1.3
Belt pulley: Diameter 15 1/2" Face 7" R.P.M. 733
Clutch: Make Twin Disc Type Single plate, dry Operated by hand
Seat Pressed steel
Total weight as tested (with operator) 7940 pounds

MOTOR:

Make Own Serial No. 540560 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 TTX-17 Size 1"
Governor: Make Own Type Variable speed, centrifugal
Air Cleaner: Make Donaldson Type Oil-washed, wire screen

CHASSIS:

Type Standard Serial No. 310305 Drive Enclosed gear
Tread width: Rear 60" Front 53"
Rear tires: No. 2 Size 12.75" x 32" - 6 ply Air pressure 16 pounds
Front tires: No. 2 Size 7.50" x 16" - 4 ply Air pressure 25 pounds
Added weight: Per rear wheel { Cast Iron 745 pounds
{ Water 400 pounds
Per front wheel: Cast Iron 39 pounds

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REPAIRS AND ADJUSTMENTS

While filling one of the rear tires with water from a barrel carrying approximately 15 pounds air pressure, the valve stem came off the inner tube. A new stem was vulcanized to the tube and it was used throughout the drawbar tests.

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>RUBBER TIRES</u>	
	Drawbar	Belt
2. Observed maximum horsepower (tests F & B)	39.00	42.88
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	41.15	44.85
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).	30.86	38.12
5. An advertised claim of 47 maximum belt horsepower was not substantiated by the results of this test.		

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 310.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
 Board of Tractor Test Engineers