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January 1940

Test 341: M-M Twin City Model RTU

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. 341

Dates of test: April 29 to May 10, 1940.

Name and model of tractor: M-M TWIN CITY RTU

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								
23.22	1400	2.394	9.70	0.626	0.000	171	62	28.875
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
21.63	1401	2.133	10.14	0.599	0.000	169	59	28.880
*TEST D - ONE HOUR								
20.52	1400	2.058	9.97	0.609	0.000	170	63	28.880
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
20.37	1397	2.051	9.93	0.611	--	170	64	--
1.23	1496	1.107	1.11	5.463	--	169	63	--
10.52	1438	1.498	7.02	0.864	--	171	64	--
21.42	1376	2.100	10.20	0.595	--	171	62	--
5.40	1475	1.231	4.39	1.383	--	172	63	--
15.59	1415	1.779	8.76	0.693	--	172	64	--
12.42	1433	1.628	7.63	0.795	0.000	171	63	28.880

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 - Third - GEAR											
20.01	1938	3.87	1401	7.58	-----	Not Recorded	-----	178	71	29.115	
TEST G - OPERATING MAXIMUM LOAD											
13.47	2666	1.89	1400	17.47	-----	Not recorded	-----	172	72	29.085	
18.11	2330	2.91	1401	10.75	-----	"	"	-----	176	72	29.090
18.72	1804	3.89	1400	7.06	-----	"	"	-----	174	71	29.105
16.40	531	11.58	1398	1.96	-----	"	"	-----	176	68	29.115
*TEST H - TEN HOURS - Third - GEAR											
15.66	1477	3.98	1403	5.32	1.926	8.13	0.746	0.015	172	67	29.190

----- NOT RATED LOAD. See REMARKS 4, page 3.

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FUEL, OIL, AND TIME

Fuel Gasoline Octane 71 Weight per gallon 6.07 pounds

Oil: S.A.E. No. 30 To motor 1.686 gal. Drained from motor 1.552 gal.

Total time motor was operated 55 hours.

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 2.3 Second 3.3
Third 4.2 Fourth 12.0 Reverse 2.6

Belt pulley: Diam. 12-1/4" Face 6" R.P.M. 933 Belt Speed 3000 f.p.m.

Clutch: Make Twin Disc Type Single plate Operated by hand

Seat Pressed steel

Total weight as tested (with operator) 4135 pounds

MOTOR

Make Own Serial No. 402514 EE Type 4 cylinder vertical

Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 3-5/8" x 4" Rated R.P.M. 1400

Valves: Position In block, horizontal over piston

Port diameter: Inlet 1-1/4" Exhaust 1-1/4"

Magneto: Make Fairbanks-Morse Model F. M. K4B

Carburetor: Make Schebler Model TSX-30 Size 1"

Governor: Make Own Type Variable speed 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. 402393 U Drive Enclosed gear

Tread width: Rear 52" - 84" Front 8" - 15"

Rear tires: No. 2 Size 8 x 36" - 4 ply Air pressure 16 pounds

Front tires: No. 2 Size 4.00" x 15" - 4 ply Air pressure 28 pounds

Added weight: Per rear wheel (Cast Iron 339 pounds
(Water 105 pounds

Per front wheel (Cast Iron 55 pounds
(Water none 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 92.9% of maximum belt horsepower.

	<u>DRAWBAR</u>	<u>BELT</u>
2. Observed maximum horsepower (tests F & B)	20.01	23.22
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	20.77	24.10
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)	15.58	20.49

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 341.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineer