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January 1938

Test 311: M-M Twin City Model UTS (Distillate)

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. 311

Dates of test: November 21 to 25, 1938.

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

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.	Cool- ing med.	Temp. Deg. F. Air	Barometer Inches of Mercury
		Gal. per hr.	H. P. hr. per gal.	Lb. per H. P. hr.				

TEST B - 100% MAXIMUM LOAD - TWO HOURS

36.48	1274	3.871	9.42	0.734	0.000	186	53	29.220
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TEST C - OPERATING MAXIMUM LOAD - ONE HOUR

35.19	1273	3.408	10.33	0.670	0.000	187	52	29.250
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*TEST D - ONE HOUR

31.47	1273	2.986	10.54	0.686	0.000	187	55	29.310
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

31.73	1272	2.996	10.59	0.653	--	188	53	--
1.69	1325	1.296	1.30	5.308	--	178	54	--
16.19	1302	2.007	8.07	0.358	--	176	56	--
33.41	1229	3.117	10.72	0.646	--	186	55	--
8.06	1307	1.582	5.09	1.359	--	178	53	--
24.26	1303	2.514	9.65	0.717	--	184	53	--
19.22	1290	2.252	8.53	0.811	0.000	181	54	29.315

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. Air	Barometer Inches of Mercury
					Gal. per hr.	H. P. per gal.	Lb. per H.P. hr.			

TEST F - 100% MAXIMUM LOAD - Third - GEAR

33.23	2781	4.42	1275	5.11	-----	Not Recorded	-----	186	22	29.310
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TEST G - OPERATING MAXIMUM LOAD

28.94	4773	2.27	1278	16.01	-----	Not Recorded	-----	185	26	29.235
31.67	3713	3.20	1275	8.14	-----	"	"	185	27	29.265
31.86	2647	4.51	1277	4.74	-----	"	"	185	18	29.350
31.13	1924	6.07	1275	3.49	-----	"	"	185	24	29.270

*TEST H - TEN HOURS - Third - GEAR

24.51	2018	4.55	1275	3.68	2.669	9.13	0.754	0.072	180	24	29.365
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*Formerly called RATED LOAD; see RESEARCH 4, page 3.

Copy of Report of Official Tractor Test No. 311

FUEL, OIL, AND TIME

Fuel Distillate Octane 38 Weight per gallon 6.92 pounds
Oil: S.A.E. No. 20 To motor 2.199 Gal. Drained from motor 1.993 Gal
Total time motor was operated 36 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. 5405600 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

Copy of Report of Official Tractor Test No. 311

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 I were made with an operating setting of the carburetor (selected by the manufacturer) of 96.5% of maximum belt horsepower.

	RUBBER TIRES	
	DRAWBAR	BELT
2. Observed maximum horsepower (tests F & B)	33.29	36.48
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	32.72	37.10
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).	24.54	31.54

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 311.

Carlton I. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. J. Harlbut
Board of Tractor Test Engineers