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January 1938

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

Nebraska Tractor Test Lab University of Nebraska-Lincoln, tractortestlab@unl.edu

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 310

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

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

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

lanufacturer's rating: NOT RATED.

BELT HORSEPOWER TESTS

н. Р.	Crank shaft speed R.P.M.	Fuel Consumption			Water used	Temp. Deg. F.		Barometer
		Gal. per hr.	H. P. hr. per gal.	Lb. per H. P. hr.	gal. per hr.	Cool- ing med.	Air	Inches of Mercury
		TES	T B - 100%	MAXIMUM LO.	AD - TWO	HOURS		
42.88	1274	4.112	1 10.43	0.589	0.000	182	75	1 29.000
		TEST C	- OPERATIN	G MAXIMUM	LOAD - ON	E HOUR		
41.67	1273	3.725	1 11.19	0.549	0.000	185	80	28.950
			*TEST	D - ONE H	OUR			
38.31	1275	3,733	10.26	0.598	0.000	178	80	28.950
7	EST E - V.	ARYING LO	AD - TWO HO	URS (20 min	nute runs	; last li	ne avera	age)
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

DRAWBAR HORSEPOWER TESTS

	Draw	Speed	Crank	Slip	Fuel	Consump	tion	Water	Ten	ip.	
H. P.	bar	miles	shaft	on		H. P.	Lb.	used	Deg.		Barometer
	pull pounds	per hr.	speed R.P.M.	drive wheels	Gal. per hr.	hr. per gal.	H.P. per	Cool- ing med.	Air	Inches of Mercury	
		T	EST F -	100% MA	XIMUM I	OAD -	Third	- GEAR			
39.00	3285	4.45	1276	6.63		Not Re	corded		185	79	28.880
			T	EST G -	OPERATI	NG MAXI	MUM LOA	D			
30.02	4959	2.27	1275	16.51		Not Re	corded		161	63	28.940
37.40	4481	3.13	1276	10.86		"	11		172	71	28.975
38.12	3195	4.47	1277	6.24		11	"		184	80	28.900
38.22	2367	6.06	1275	4.38		11	II		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							
4	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 SPEC	IFIC/TIONS							
	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							
4	Belt pulley: Dismeter 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							
The second secon	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							
	The state of the s							
	Added weight: Per rear wheel (Water 400 pounds							

Per front wheel: Cast Iron

39

pounds

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EPAIRS 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.

		RUBBER TIRES			
		Drawbar	Eelt		
2.	Observed maximum horsepower (tests F & B)	39.00	42.88		
3.	Sea level (calculated) max- imum 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.

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

Carlton L. Zink	E. E. Brackett
Engineer-in-charge	
	C. W. Smith

L. W. Hurlbut

Board of Tractor Test Engineers