January 1937

Test 290: M-M Twin City Model ZT

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. 290

Dates of test: October 4 to 12, 1937.
Name and model of tractor: M-M TWIN CITY ZT
Manufacturer: Minneapolis-Moline Power Implement Company, Minneapolis, Minnesota.
Manufacturer's rating: NOT RATED

B R A K E 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 Consumption per hour gallons			Temp. Deg. F.		Barometer Inches of Mercury
		Gal. per hr.	H. P. hr. per gal.	Lb. Per H. P. hr.	Cooling	In fuel	Total	Cooling med.	Air	
TEST B - 100% MAXIMUM LOAD - TWO HOURS										
26.84	1498	2.905	9.24	0.750	0.000	0.000	0.000	189	61	29.150
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR										
25.20	1500	2.495	10.10	0.686	0.000	0.000	0.000	189	60	29.175
*TEST D - ONE HOUR										
23.62	1502	2.349	10.06	0.689	0.000	0.000	0.000	190	60	29.180
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)										
23.72	1502	2.355	10.07	0.688	--	--	--	190	60	--
0.80	1621	1.147	0.70	9.938	--	--	--	179	59	--
12.27	1582	1.745	7.03	0.985	--	--	--	186	60	--
25.22	1500	2.489	10.13	0.684	--	--	--	190	61	--
6.22	1602	1.416	4.39	1.577	--	--	--	186	60	--
17.53	1562	1.991	8.80	0.787	--	--	--	188	61	--
14.29	1562	1.857	7.70	0.901	0.000	0.000	0.000	186	60	29.190

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. hr. per gal.	Lb. per H.P. hr.		Cooling med.	Air	
TEST F - 100% MAXIMUM LOAD - Third GEAR											
20.53	2270	3.39	1500	4.51	----- Not Recorded -----				194	69	29.200
TEST G - OPERATING MAXIMUM LOAD											
19.82	3262	2.28	1495	8.31	----- Not Recorded -----				188	61	29.180
20.37	2691	2.84	1500	5.14	----- " " -----				188	68	29.180
19.53	2149	3.41	1503	4.20	----- " " -----				189	70	29.225
17.55	1302	5.05	1502	3.75	----- " " -----				188	65	29.180
*TEST H - TEN HOURS - Third GEAR											
15.98	1768	3.39	1497	4.34	2.145	7.45	0.931	0.016	187	50	29.070

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

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FUEL, OIL, AND TIME

Fuel Distillate Weight per gallon (Belt 6.93 pounds (Drawbar 6.94 pounds

Oil: S.A.E. No. 30 To motor 3.405 gal. Drained from motor 3.780 gal.

Total time motor was operated 46 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per Hour: First 2.18 Second 2.62 Third 3.13

Fourth 4.57 Fifth* 14.3 Reverse 1.0

Belt pulley: Diameter 14" Face 7" R.P.M. 786

Clutch: Make Twin Disc Type Single-plate, dry Operated by Hand

Seat Pressed steel

Total weight as tested (with operator) 4280 pounds

MOTOR: Make Own Serial No. 40973 Type 4 cylinder, vertical

Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 3 5/8" x 4 1/2" Rated R.P.M. 1500

Valves: Position In block, horizontal over piston

Port diameter: Inlet 1.25" Exhaust 1.25"

Magneto: Make Fairbanks-Morse Model RV-4

Carburetor: Make Schebler Model TRX 12 Size 1"

Governor: Make Own Type Variable-speed, centrifugal

Air cleaner: Make Donaldson Type Oil-washed, wire filter and pre-cleaner

CHASSIS: Type Tricycle Serial No. 560228 Drive Enclosed gear

Tread width: Rear 54" - 76" Front: Top 13" Bottom 7"

Drive wheels: Type Standard No. 2 Diameter 50" Face 8"

Lugs: Type Spade No. per wheel 24 Size 4" high x 3" wide

Extension rims: Face 5" Lugs per rim 12 Size 4" high x 3" wide

Front wheels: Type Standard No. 2 Diameter 25" Face 4 1/2"

*Not recommended for steel wheels.

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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 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 carubretor (selected by the manufacturer) of 93.9% of maximum horsepower.

2. Observed maximum horsepower (tests F & B) Drawbar 20.53 Belt 26.84

3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.) Drawbar 21.21 Belt 27.56

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). Drawbar 15.91 Belt 23.43

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 290.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

Ivan D. Wood

L. W. Hurlbut
Board of Tractor Test Engineers