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January 1936

## Test 249: Twin City M-M Model KTA (HC)

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT  
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 249

Dates of test: March 30 to April 10, 1936.

Name and model of tractor: M-M Twin City KTA (HC).

Manufacturer: Minneapolis-Moline Power Implement Co., 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 :	Fuel Consumption :Gals. :	H. P. :H. P. :	Lbs.per: :H. P. :	Cool- :ing :	In :fuel :	Water Consumption :per hour gallons :	Temp. :Deg. F. :	:Baromete :Inches of :Mercury
	:speed :	per	hrs. per	hour	gal.	hour			
	:R.P.M. :	per	hour	gal.	hour				

TESTS B & C 100% MAXIMUM LOAD. TWO HOURS

41.60: 1150 : 3.585 : 11.60 : 0.528 : 0.000 : 0.000 : 0.000 : 170 : 65 : 28.770

TEST D RATED LOAD. ONE HOUR

37.22: 1151 : 3.320 : 11.24 : 0.545 : 0.000 : 0.000 : 0.000 : 165 : 62 : 28.800

TEST E \*VARYING LOAD. TWO HOURS

37.35:	1152:	3.323:	11.24:	0.545:	--:	--:	--:	165:	61:	:
0.84:	1254:	1.189:	0.71:	8.679:	--:	--:	--:	150:	59:	:
19.23:	1201:	2.212:	8.69:	0.705:	--:	--:	--:	149:	60:	:
38.16:	1089:	3.367:	11.33:	0.541:	--:	--:	--:	173:	64:	:
9.84:	1222:	1.605:	6.13:	1.000:	--:	--:	--:	150:	61:	:
28.42:	1184:	2.760:	10.30:	0.595:	--:	--:	--:	160:	62:	:
22.30:	1184:	2.410:	9.24:	0.662:	0.000:	0.000:	0.000:	158:	61:	28.830

\*20 minute runs. Last line is average for two hours.

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Copy of Report of Official Tractor Test No. 249D R A W B A R H O R S E P O W E R T E S T SSTEEL WHEELS

	: Draw	: Speed	: Crank	: Slip	: Fuel Consumption	: Water	: Temp.	:
H. P.	: bar	: miles	: shaft	: on	: H. P.	: Lbs.	: used	: Barometer
	: pull	: per	: speed	: drive	: Gal.	: hour	: per	: Gal.
	: pounds	: hour	: R.P.M.	: wheels	: per	: per	: H.P.	: per
	:	:	:	: %	: hour	: gal.	: hour	: hour
	:	:	:	:	:	:	: med.	:

## TESTS F &amp; G MAXIMUM LOAD

27.18	: 4888	: 2.09	: 1157	: 15.57	: -----	Not Recorded	: -----	: 180	: 70	: 29.000
30.07	: 3302	: 3.41	: 1153	: 5.06	: -----	"	: -----	: 160	: 48	: 29.045
28.78	: 2365	: 4.56	: 1150	: 3.70	: -----	"	: -----	: 165	: 47	: 28.995

TEST H RATED LOAD. TEN HOURS. Second GEAR.

23.95	: 2601	: 3.45	: 1152	: 3.49	: 3.106	: 7.71	: 0.795	: 0.000	: 169	: 68	: 28.875
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FUEL ECONOMY TEST. Four HOURS. Third GEAR.

21.76	: 1788	: 4.56	: 1151	: 3.33	: 3.086	: 7.05	: 0.869	: 0.000	: 167	: 63	: 28.880
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RUBBER TIRES

	: Draw	: Speed	: Crank	: Slip	: Fuel Consumption	: Water	: Temp.	:
H. P.	: bar	: miles	: shaft	: on	: H. P.	: Lbs.	: used	: Barometer
	: pull	: per	: speed	: drive	: Gal.	: hour	: per	: Gal.
	: pounds	: hour	: R.P.M.	: wheels	: per	: per	: H.P.	: per
	:	:	:	: %	: hour	: gal.	: hour	: hour
	:	:	:	:	:	:	: med.	:

## TEST G OPERATING MAXIMUM LOAD.

13.43	: 2437	: 2.07	: 1151	: 14.07	: -----	Not Recorded	: -----	: 145	: 51	: 28.400
19.43	: 2452	: 2.97	: 1154	: 15.35	: -----	"	: -----	: 155	: 56	: 28.380
25.97	: 2540	: 3.83	: 1151	: 17.06	: -----	"	: -----	: 155	: 57	: 28.380

FUEL ECONOMY TEST. Four HOURS. Second GEAR.

14.89	: 1704	: 3.28	: 1153	: 6.56	: 1.833	: 8.12	: 0.754	: 0.000	: 150	: 66	: 28.775
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FUEL ECONOMY TEST. Four HOURS. Third GEAR.

19.64	: 1709	: 4.31	: 1151	: 6.74	: 2.322	: 8.46	: 0.725	: 0.000	: 153	: 65	: 28.840
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Copy of Report of Official Tractor Test No. 249

BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. 527875 Type 4 cylinder, vertical  
Head I Mounting Crankshaft lengthwise  
Bore and stroke 4 1/4" x 5" Rated R. P. M. 1150  
Port Diam. Valves: Inlet 1 1/2" Exhaust 1 3/8"  
Belt pulley: Diam. 14" Face 7" R. P. M. 822  
Magnet American Bosch Model U 4  
Carburetor Schebler Model TTX 15 Size 1"  
Governor Own Type Centrifugal  
Air Cleaner: Donaldson Type Ejector and oil-washed, wire-screen filter  
Lubrication Pressure

CHASSIS: Type 4 wheels, 2 drivers Serial No. 304070 Drive Enclosed gear  
Clutch Twin Disc Type Single plate Operated by hand  
Advertised speeds, miles per hour: First 2.25 Second 3.25  
Third 4.25 Reverse 1.9

Steel: Drive wheels: Diameter 42" Face 10"  
Lugs: Type Spade No. per wheel 20 Size 4" high x 2" face  
Extension rims: Width 6" Lugs per rim 10 Size 4" high x 2" face

Rubber: Drive wheel tires 12.75" x 24" Air pressure 16 pounds  
Front wheel tires 6.00" x 16" Air pressure 30 pounds  
Weights per drive wheel 4 Average total weight 560 pounds

Seat Pressed steel  
(Steel 5225 pounds)  
Total weight as tested (with operator) (Rubber 6230 pounds)

FUEL AND OIL:

Fuel: Gasoline (68-70 Octane) Weight per gallon 6.13 pounds

Oil: S.A.E. No. 20 The oil was drained once -  
at the end of the test.

Total Oil to Motor 3.373 gallons

Total drained from motor 1.451 gallons

Total time motor was operated 61 hours

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

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 these figures were used in determining the ratings recommended by the A.S.A.E. and S.A.E. tractor rating codes. Tests D, C, E, G, and H were made with an operating setting of the carburetor (selected by the manufacturer) of 100% of maximum horsepower

Observed maximum horsepower (tests B & F) Drawbar 30.07 Belt 41.60

Sea level (calculated) maximum horsepower Drawbar 30.61 Belt 43.47  
 (Based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings \*Drawbar 22.96 Belt 36.95  
 (As recommended by A.S.A.E. and S.A.E.  
 codes)

\*Drawbar rating based on results of test using steel wheels.

The 100% maximum belt and drawbar tests were not included in reports issued from 1928 to 1934 inclusive, except in those cases where the 100% maximum setting was used throughout the complete test.

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 249.

Carlton L. Zink  
 Engineer-in-charge

E. E. Brackott

C. W. Smith

L. W. Hurlbut  
 Board of Tractor Test Engineers