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January 1936

Test 270: M-M Twin City Model FTA

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. 270

Dates of test: September 10 to 18, 1936.

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

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 :	Fuel Consumption :Gals. : H. P. :Lbs. per:	Water Consumption : per hour gallons :	Temp. : Deg. F. :	:Barometer :Inches of :Mercury
	:speed : :R.P.M.:	:hrs. per: :gal. : hour :	:Cool- : :ing : fuel :	:In : :Total :ing :	:Cool- : :Air :med. :

TEST B 100% MAXIMUM LOAD. TWO HOURS

44.72 : 1074 : 4.356 : 10.27 : 0.675 : 0.016 : 0.000 : 0.016 : 197 : 98 : 28.655

TEST C OPERATING MAXIMUM LOAD. ONE HOUR

44.09 : 1075 : 4.003 : 11.01 : 0.629 : 0.026 : 0.000 : 0.026 : 195 : 96 : 28.690

TEST D RATED LOAD. ONE HOUR

41.26 : 1074 : 3.629 : 11.37 : 0.610 : 0.000 : 0.000 : 0.000 : 190 : 94 : 28.710

TEST E *VARYING LOAD. TWO HOURS

41.12	: 1073	: 3.597	: 11.43	: 0.606	: --	: --	: --	: 188	: 93	: --
0.94	: 1203	: 1.472	: 0.64	: 10.851	: --	: --	: --	: 179	: 92	: --
22.05	: 1152	: 2.606	: 8.46	: 0.819	: --	: --	: --	: 178	: 93	: --
41.55	: 1037	: 3.688	: 11.27	: 0.615	: --	: --	: --	: 189	: 92	: --
11.43	: 1180	: 2.017	: 5.67	: 1.223	: --	: --	: --	: 177	: 92	: --
32.52	: 1125	: 3.199	: 10.17	: 0.682	: --	: --	: --	: 180	: 92	: --
24.94	: 1128	: 2.763	: 9.03	: 0.768	: 0.000	: 0.000	: 0.000	: 182	: 92	: 28.720

*20 Minute runs. Last line is average for two hours.

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 :	Speed : miles :	Crank : : shaft :	Slip : : on :	Fuel Consumption : H. P. : Lbs. :	Water: : used :	Temp. : : :	:Barometer :Inches of :Mercury
	: pull : : pounds:	: per : hour :	: speed : : R.P.M.:	: drive: : wheels:	: Gal. : hour : : per : per :	: Gal. : hour : : per : per :	:Cool- : :ing :Air:	:Inches of :Mercury
	:	:	:	: % :	: hour: gal. :	: hour: hour :	:med. : :	:

TEST F 100% MAXIMUM LOAD. Second GEAR.

35.23 : 3691 : 3.58 : 1075 : 2.17 : -----Not Recorded----- : 172 : 70 : 29.170

TEST G OPERATING MAXIMUM LOAD.

33.18	: 4724	: 2.63	: 1076	: 3.66	: -----Not Recorded-----	: 171	: 67	: 29.115
32.51	: 3406	: 3.58	: 1075	: 2.17	: ----- " " -----	: 170	: 70	: 29.185
29.68	: 2427	: 4.59	: 1074	: 1.88	: ----- " " -----	: 172	: 69	: 29.200

TEST H RATED LOAD. TEN HOURS. Second GEAR.

27.34 : 2867 : 3.58 : 1075 : 2.23 : 3.435 : 7.96 : 0.872 : 0.073 : 175 : 73 : 28.980

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Copy of Report of Official Tractor Test No. 270

BRIEF SPECIFICATIONS

MOTOR: Make Own Serial No. 900961 Type 4 cylinder, vertical
Head I Mounting Crankshaft lengthwise
Bore and stroke: 4 5/8" x 6" Rated R.P.M. 1075
Port Diam. Valves: Inlet 1 13/16" Exhaust 1 13/16"
Belt pulley: Diam. 16" Face 7 1/2" R.P.M. 650
Magneto American Bosch Model MJB4A-102
Carburetor Schebler Model TTX-16 Size 1 1/4"
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. 155297 Drive Enclosed gear
Clutch Twin Disc Type Single-plate, dry Operated by Hand
Advertised speeds, miles per hour: First 2.36 Second 3.17
Third 4.05 Reverse 1.74
Drive wheels: Diameter 50" Face 12"
Lugs: Type Spade No. per wheel 24 Size 5" high x 3" face
Extension rims: Width 8" Lugs per rim 12
Size lugs 5" high x 3" face
Seat Pressed steel

FUEL AND OIL: Total weight as tested (with operator) 6920 pounds.
(6.93 - Tests B,C,D,E,F,G.
Fuel: Distillate Weight per gallon (6.94 - Test H) pounds.
Oil: S.A.E. Viscosity No. 30
Total oil to motor 2.237 gallons
Total drained from motor 1.916 gallons
Total time motor was operated 49 hours

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLNCopy of Report of Official Tractor Test No. 270REPAIRS AND ADJUSTMENTS

The water pump packing nut was tightened one sixth turn before the rated load drawbar test was run.

During this same test the steering column support set screw in the steering bracket and the steering bracket felt retainer became loose and a small amount of transmission oil worked out.

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. These figures were used in determining the ratings as recommended by the A.S.A.E. and S.A.E. tractor rating codes. Tests C, D, E, G and H were made with an operating setting of the carburetor (selected by the manufacturer) of 98.6% of maximum horsepower.

Observed maximum horsepower (tests B & F) Drawbar 35.23 Belt 44.72

Sea level (calculated) maximum horsepower Drawbar 36.50 Belt 48.39
(Based on 60° F. and 29.92" Hg.)

Highest permissible horsepower ratings Drawbar 27.38 Belt 41.13
(As recommended by A.S.A.E. and S.A.E.
codes)

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 270.

Carlton L. Zink

Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut

Board of Tractor Test Engineers