

January 1949

Test 411: Minneapolis-Moline U-Standard

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Copy of Report of Official Tractor Test No. 411

Dates of Test: May 31, 1949 to June 8, 1949
 Name and model of tractor: MINNEAPOLIS-MOLINE U-STANDARD
 Manufacturer: MINNEAPOLIS-MOLINE CO., MINNEAPOLIS, MINNESOTA
 Manufacturer's rating: None

HORSEPOWER SUMMARY

	DRAWBAR	BELT
1. Sea level (calculated maximum horsepower based on 60° F. and 29.92" Hg.)	43.03	48.76
2. Observed maximum horsepower (tests F & B)	41.05	46.87
3. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly ASAE and SAE ratings)	32.27	41.45

REMARKS

No repairs or adjustments

FUEL, OIL, and TIME

Fuel Propane Octane 97.1 * Weight per gallon 4.25 lb.
Oil SAE 20 To Motor 2.719 gal. Drained from motor 2.506 gal.
Total time motor was operated 47 hours

* Octane rating taken from oil company's typical inspection data.

We, the undersigned, certify that this is a true and correct report of official tractor test No. 411

L. F. Larsen
 Engineer in Charge

C. W. Smith

L. W. Hurlbut

F. D. Yung

BOARD OF TRACTOR TEST ENGINEERS

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All results shown on pages 2 and 3 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 those tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, H, J and K were made with an operating setting of the carburetor (selected by the manufacturer) of 98.7% of maximum belt horsepower.

B E L T H O R S E P O W E R T E S T S

Horsepower	Crank shaft speed rpm	Fuel Consumption			Water used gal per hr	Temperature		Barometer Inches of Mercury
		gal per hr	hp-hr per gal	lb per hp hr		Cooling med °F.	Air °F.	

TEST B - 100% MAXIMUM LOAD - TWO HOURS

46.87	1275	5.380	8.71	0.488	0.00	171	66	28.922
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TEST C - OPERATING MAXIMUM LOAD - ONE HOUR

46.17	1274	5.113	9.03	0.471	0.00	171	68	28.935
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*TEST D - ONE HOUR

41.51	1274	4.805	8.64	0.492	0.00	171	70	28.970
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

41.61	1277	4.864	8.55	0.497	- - -	171	71	- - - -
2.53	1361	1.673	1.51	2.810	- - -	152	71	- - - -
21.50	1319	3.176	6.77	0.628	- - -	157	72	- - - -
43.81	1209	4.864	9.01	0.472	- - -	179	74	- - - -
11.23	1354	2.336	4.81	0.884	- - -	155	74	- - - -
31.50	1296	3.854	8.17	0.520	- - -	157	76	- - - -
25.36	1303	3.461	7.33	0.580	0.00	162	73	28.970

* Formerly called RATED LOAD, see HORSEPOWER SUMMARY 3, page 1.

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D R A W B A R H O R S E P O W E R T E S T S

Horse- power	Draw bar pull lb	Speed mph	Crank shaft speed rpm	Slip on drive wheels %	Fuel Consumption			Water used gal per hr	Temperature		Barometer Inches of Mercury
					gal per hr	hp-hr per gal	lb per hp-hr		Cool- ing med °F.	Air °F.	

TEST F - 100% MAXIMUM LOAD - 3rd GEAR

41.05	3977	3.87	1278	8.64	-----Not Recorded-----				173	76	28.980
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TEST G - OPERATING MAXIMUM LOAD

27.63	4781	2.17	1276	15.23	-----Not Recorded-----				164	78	28.980
39.60	4629	3.21	1277	11.35	-----Not Recorded-----				172	77	28.980
40.94	3941	3.90	1279	8.11	-----Not Recorded-----				169	78	28.980
39.12	2547	5.76	1275	5.27	-----Not Recorded-----				171	77	28.980
32.64	884	13.85	1277	2.27	-----Not Recorded-----				173	85	28.900

*TEST H - TEN HOURS - 3rd GEAR

32.56	3089	3.95	1281	6.89	4.309	7.56	0.563	0.00	162	75	29.027
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TEST J - OPERATING MAXIMUM LOAD - 3rd GEAR

29.78	3126	3.57	1278	15.90	-----Not Recorded-----				174	86	28.900
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TEST K - OPERATING MAXIMUM LOAD - 3rd GEAR

Lightest weight wheels and smallest tires suggested by manufacturer. All added weight removed from tractor (liquid, cast iron, or any other added forms.)

31.42	3068	3.84	1276	14.68	-----Not Recorded-----				179	87	28.900
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* Formerly called RATED LOAD; see POWER SUMMARY 3, page 1.

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TIRES, WHEELS, and WEIGHT

	Tests F, G, & H	Test J	Test K
Rear Wheel: Type (each)	Cast Iron	Cast Iron	Cast Iron
Liquid Ballast	593 lb.	None	None
Added Cast Iron	660 lb.	None	None
Rear Tires: No. Size & Ply	2 14-30 4 ply	2 14-30 6 ply	2 12-38 6 ply
Type of Tread	Sure-Grip	Suro-Grip	Champion Ground Grip
Make	Goodyear	Goodyear	Firestone
Air Pressure	14 lb.	12 lb.	12 lb.
Front Wheel: Type (each)	Pressed Steel	Pressed Steel	Pressed Steel
Liquid Ballast	None	None	None
Added Cast Iron	40 lb.	None	None
Front Tires: No. Size & Ply	2 7.50-16 6 ply	2 7.50-16 6 ply	2 7.50-16 6 ply
Type	Guide Grip	Guido Grip	Guide Grip
Make	Firestone	Firestone	Firestone
Air Pressure	28 lb.	28 lb.	28 lb.
Height of Drawbar	13 inches	13 1/2 inches	17 inches
Static Weight: Rear End	6447 lb.	3941 lb.	3970 lb.
Front End	1953 lb.	1863 lb.	1860 lb.
Total Weight as Tested (with Operator)	8575 lb.	5979 lb.	6005 lb.

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SPECIFICATIONS

Type Standard Serial No. 0124900417 Drive Enclosed Gear
Troad width: Rear 57 in. Front 50 1/2 in. Wheel Base: 81 in.
Advertised speeds, miles per hour: First 2.7 Second 3.8 Third 4.5
Fourth 6.4 Fifth 14.8 Reverso 2.1
Bolt pulley: Diam. 16 in. Face 7 in. RPM 727 Bolt speed 3050 fpm.
Clutch: Make Twin-Disc Type Single Plate Operated by Hand Lever
Seat Swinging seat with air cushion
Hydraulic control: Yes
Brakes: Make Own Type Internal Expanding Shoe
Location Differential Shaft
Gear reduction (brake drum to rear wheel) 4.357 - 1
Operated by Foot pedals
Locked by Latches on platform
Equalization: Yes, by cable adjustment.
Engine: Make Own Serial No. 0194902397 Type 4 cylinder vortical
Head I Mounting Longthwiso Lubrication Pressure
Boro & Stroke 4 1/4 in. x 5 in. Rated rpm 1275 Compression ratio 6.8:1
Port diameter valves: Inlet 1 1/2 in. Exhaust 1 3/8 in.
Distributor & Coil: Make Delco-Remy Battery Exido 6-volt
Starter: Make Delco-Remy
Carburator: Make Ensign Model KGL Size 1 in.
Governor: Make Own Type Fly-ball variable speed
Air Cleaner: Make United Type Oil washed
Oil Filter: Make Michiana Type Replacoable Cartridge
Cooling medium temperature control: Thermostat