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January 1947

Test 387: John Deere M

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 387

Dates of test: October 6, 1947 to October 16, 1947
 Name and model of tractor: John Deere Model "M"
 Manufacturer: JOHN DEERE DUBUQUE TRACTOR WORKS OF DEERE MANUFACTURING COMPANY
 Dubuque, Iowa
 Manufacturer's rating: None

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

Horse- power	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		Cool- ing med. °F	Air °F	

TEST B - 100% MAXIMUM LOAD - TWO HOURS

20.45	1651	1.965	10.41	0.579	0.02	205	78	29.050
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TEST C - OPERATING MAXIMUM LOAD - ONE HOUR

19.49	1653	1.752	11.12	0.542	0.01	206	82	29.020
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*TEST D - ONE HOUR

18.23	1654	1.643	11.10	0.543	0.01	203	83	28.950
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

18.25	1656	1.643	11.11	0.542	- --	202	82	-- ---
1.34	1700	0.801	1.67	3.604	- --	200	82	-- ---
9.41	1704	1.150	8.18	0.736	- --	201	80	-- ---
18.50	1538	1.648	11.23	0.537	- --	204	79	-- ---
4.72	1697	0.951	4.96	1.214	- --	201	77	-- ---
13.81	1665	1.389	9.94	0.606	- --	200	77	-- ---
11.01	1660	1.263	8.72	0.692	- --	201	79	-- ---

*Formerly called RATED LOAD; see REMARKS 4, page 5.

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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		Cooling med. OF	Air OF	

Rear wheels, tires and added weight used in Tests F, G, and H; Cast iron wheels; 9-24, 4-ply tires and 598 lb added weight per wheel.

TEST F - 100% MAXIMUM LOAD - 3RD GEAR

18.15	1581	4.30	1656	6.91	-----Not Recorded-----			206	83	28.915
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TEST G - OPERATING MAXIMUM LOAD

9.99	2329	1.61	1647	16.08	-----Not Recorded-----			196	79	28.825
17.84	2139	3.13	1655	10.60	" "			210	85	28.825
17.69	1540	4.31	1651	6.61	" "			209	84	28.830
16.95	632	10.06	1651	3.10	" "			207	85	28.825

*TEST H - TEN HOURS - 3RD GEAR

14.65	1279	4.30	1650	6.80	1.585	9.24	0.652	0.03	199	80	28.769
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TEST J - OPERATING MAXIMUM LOAD

Same wheels and tires as used in Tests F, G, and H. All added weight removed from tractor (liquid, cast iron, or any other added forms). 3rd gear.

15.74	1564	3.78	1650	16.99	-----Not Recorded-----			207	84	28.750
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TEST K - OPERATING MAXIMUM LOAD

Lightest weight wheels and smallest tires suggested by manufacturer. All added weight removed from tractor (liquid, cast iron, or any other added forms). 3rd gear.

14.25	1455	3.67	1651	15.14	-----Not Recorded-----			205	78	28.750
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*Formerly called RATED LOAD; see REMARKS 4, page 5.

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FUEL, OIL, AND TIME

Fuel Gasoline Octane 74* Weight per gallon 6.027 lb

Oil: SAE No. 30 To motor 1.239 gal Drained 1.120 gal Opr Time 25 hr

SAE No. 10-10W To motor 1.245 gal Drained 1.046 gal Opr Time 29½ hr

Total time motor was operated 54½ hours

TIRES, WHEELS, AND WEIGHT

	Tests F, G, & H	Test J	Test K
Rear Wheel; Type and Weight (each)	Cast iron 89 lb	Cast iron 89 lb	Cast iron 89 lb
Liquid Ballast	148 lb	None	None
Added Cast Iron	450 lb	None	None
Rear Tires; No., Size & Ply	2 9-24 4-ply	2 9-24 4-ply	2 8-24 4-ply
Type of Tread	Champion Ground Grip	Champion Ground Grip	Champion Ground Grip
Make	Firestone	Firestone	Firestone
Air Pressure	16 lb	12 lb	12 lb
Front Wheel; Type and Weight (each)	Cast iron 38 lb	Cast iron 38 lb	Cast iron 38 lb
Liquid Ballast	18 lb	None	None
Added Cast Iron	None	None	None
Front Tires; No., Size, & Ply	2 5.00-15 4-ply	2 5.00-15 4-ply	2 4.00-15 4-ply
Type of Tread	Guide Grip	Guide Grip	Guide Grip
Make	Firestone	Firestone	Firestone
Air Pressure	28 lb	28 lb	28 lb
Height of Drawbar	16 inches	16.5 inches	15.5 inches
Static Weight; Rear End	2848 lb	1645 lb	1620 lb
Front End	904 lb	876 lb	875 lb
Total Weight as Tested With Operator	3952 lb	2721 lb	2695 lb

*Octane Rating from Oil Company's Typical Inspection Data

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CHASSIS

Type Standard Serial No. 10271 Drive Enclosed Gear

Tread width: Rear 38" to 52" Front 41"

Advertised speeds, miles per hour: First 1 5/8 Second 3 1/8 Third 4 1/4
Fourth 10 to 12 Reverse 1 5/8

Belt pulley: Diam. 7 1/2" Face 6 3/8" RPM 1575 Belt speed 2989 fpm

Clutch: Make Auburn Type Single Plate Operated by Foot pedal

Seat Air cushion with back rest

Brakes: Make Lambert Type Single Disc

Location Final drive pinion shaft

Gear reduction (brake drum to rear wheel) 4.5 to 1

Operated by Two foot pedals side by side

Locked by Cam for each pedal

Equalization By ball of foot

ENGINE

Make Own Serial No. 1290 Type 2 cylinder - vertical

Head I Mounting Lengthwise Lubrication Pressure

Bore and stroke 4" x 4" Rated RPM 1650

Port diameter valves: Inlet 1 1/2" Exhaust 1 11/32"

Distributor & Coil: Make Delco Remy Battery Exide

Carburetor: Make Marvel Schebler Model TSX 245 Size 1"

Governor: Make Own Type Variable Speed - Centrifugal

Air Cleaner: Make Donaldson Type Oil washed wire screen

Oil Filter: Make Purolator Type By-pass - using impregnated replaceable paper element

Cooling medium temperature control: Thermo Siphon

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REPAIRS AND ADJUSTMENTS

Prior to test "B" the cylinder head was removed for inspection.

Exhaust valves were reseated and refaced.

SAE No. 10-10W oil was used during tests "B" to "K" inclusive.

REMARKS

- All results shown on pages 1 and 2 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 95.8% of maximum belt horsepower.
- Observed maximum horsepower (tests F & B)

	DRAWBAR	BELT
2. Observed maximum horsepower (tests F & B)	18.15	20.45
- Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)

	DRAWBAR	BELT
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	19.19	21.42
- Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly ASAE and SAE ratings)

	DRAWBAR	BELT
4. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly ASAE and SAE ratings)	14.39	18.21

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 387.

L. F. Larsen
Engineer-in-Charge

C. W. Smith

F. D. Yung

L. W. Hurlbut
BOARD OF TRACTOR TEST ENGINEERS