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January 1941

Test 368: McCormick-Deering Farmall Model MD (Diesel)

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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Copy of Report of Official Tractor Test No. 368

Dates of test: May 21 to June 18, 1941

Name and model of tractor: McCORMICK-DEERING FARMALL MD (Diesel)

Manufacturer: International Harvester Company, Chicago, Illinois

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

Hp.	Crank- shaft Speed R.P.M.	Fuel Consumption			Water Used Gal. per Hr.	Temperature Deg. F.		Barometer Inches of Mercury
		Gal. per Hr.	Hp.-hr. per Gal.	Lb. per Hp.-hr.		Cool- ing Medium	Air	

TESTS B and C - 100% MAXIMUM LOAD - TWO HOURS

35.02	1451	2.404	14.57	0.480	0.000	196	82	29.250
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* TEST D - ONE HOUR

31.17	1451	2.120	14.70	0.476	0.000	199	85	29.170
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TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

31.21	1451	2.117	14.74	0.475	- ---	200	86	-- ---
1.36	1559	0.759	1.79	3.904	- ---	194	86	-- ---
16.30	1510	1.363	11.96	0.585	- ---	194	85	-- ---
34.28	1421	2.374	14.44	0.485	- ---	194	86	-- ---
8.30	1537	1.024	8.11	0.864	- ---	198	85	-- ---
23.94	1471	1.740	13.76	0.509	- ---	192	84	-- ---
19.23	1492	1.563	12.30	0.569	0.000	195	85	29.130

* 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

Hp.	Draw-bar Pull Lbs.	Speed Miles per Hr.	Crank- shaft Speed R.P.M.	Slip of Drive Wheels %	Fuel Consumption			Water Used Gal. per Hr.	Temp. Deg. F.		Barometer Inches of Mercury
					Gal. per Hr.	Hp.-hr. per Gal	Lb. per Hp.-hr.		Cool- ing Med.	Air	

Rear wheels, tires and added weight used in Tests F, G and H: Cast iron wheels; 12-38, 6 ply tires and 1135 lbs. added weight per wheel.

TESTS F and G - 100% MAXIMUM LOAD

26.90	4541	2.22	1451	16.51	----- Not Recorded -----			186	88	28.740
31.05	3566	3.26	1450	7.82	" "			194	85	28.800
31.46	2894	4.08	1450	5.78	" "			191	88	28.785
31.43	2341	5.04	1450	4.12	" "			193	88	28.775

* TEST H - TEN HOURS - Second GEAR

25.40	2893	3.29	1448	6.89	1.962	12.95	0.541	0.000	192	79	28.700
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TEST J - 100% 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). Second gear.

24.20	3087	2.94	1449	15.30	----- Not Recorded -----			200	79	28.955
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TEST K - 100% MAXIMUM LOAD

Rear wheels, tires and added weight used; Cast iron wheels; 10-38, 4 ply tires and no added weight per rear wheel (** Combination No. 2). Second gear.

19.87	2623	2.84	1451	15.67	----- Not Recorded -----			190	71	28.850
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* Formerly called RATED LOAD; see REMARKS 4, page 5.

** Combination No. 1: Includes wheels, tires and added weight recommended in the manufacturer's published specifications.

Combination No. 2: When the manufacturer does not make a specific recommendation, then the tires used are the smallest size and ply and the wheels are the lightest listed in published specifications or the application for test.

See Page 3 for specifications on wheels, tires and weight.

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Corrected Copy of Report of Official Tractor Test No. 368

FUEL, OIL and TIME

Fuel Commercial diesel fuel Weight per gallon 7.00 pounds

Oil: S.A.E. No. 20 To motor 2.458 gal. Drained from motor 2.075 gal.

Total time motor was operated 61 hours.

TIRES, WHEELS and WEIGHT

		Tests F, G & H	Test J	Test K
Rear Wheel: (each)	Type and Weight	Cast Iron, 257 lbs	Cast Iron, 257 lbs	Cast Iron, 257 lbs
	Liquid Ballast	415 lbs	None	None
	Added Cast Iron	720 lbs	None	None
Rear Tires:	No., Size & Ply	2, 12-38, 6 ply	2, 12-38, 6 ply	2, 10-38, 4 ply
	Type of Tread	Sure-Grip	Sure-Grip	Sure-Grip
	Make	Goodyear	Goodyear	Goodyear
	Air Pressure	16 lbs	16 lbs	16 lbs
Front Wheel: (each)	Type and Weight	Cast Iron, 29 lbs	Cast Iron, 29 lbs	Cast Iron, 29 lbs
	Liquid Ballast	None	None	None
	Added Cast Iron	None	None	None
Front Tires:	No., Size & Ply	2, 6.50-16, 4 ply	2, 6.50-16, 4 ply	2, 6.50-16, 4ply
	Type of Tread	Triple-rib	Triple-rib	Triple-rib
	Make	Goodyear	Goodyear	Goodyear
	Air Pressure	28 lbs	28 lbs	28 lbs
Height of Drawbar		19 1/4"	19 1/2"	17 1/2"
Static Weight: Rear End		5680 lbs	3415 lbs	3260 lbs
Front End		1710 lbs	1705 lbs	1700 lbs
Total Weight as Tested (With operator)		7570 lbs	5300 lbs	5140 lbs

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CHASSIS

Type Tricycle Serial No. FDBK29832 Drive Enclosed gear
 Tread width: Rear 52"-88" Front: Top 13 1/2" Bottom 8 1/2"
 Advertised speeds, miles per hour: First 2 5/8 Second 3 1/2 Third 4 1/4
 Fourth 5 1/8 Fifth 16 3/8 Reverse 3 1/8
 Belt pulley: Diam. 11" Face 7 1/2" R.P.M. 899 Belt Speed 2587 f.p.m.
 Clutch: Make Rockford Type Single plate, dry disc Operated by Foot
 Seat Pressed steel with canvas covered felt pad
 Brakes: Make Own Type External contracting bands
 Location Ends of differential shafts
 Gear reduction (brake drum to rear wheel) 5.615 to 1
 Operated by Right foot on adjacent pedals, either independently or interlocked
 Locked by Pawl and ratchet on right pedal
 Equalization By springs when pedals are locked together

MOTOR

Make Own Serial No. FDBKM726 Type 4 cylinder, vertical, diesel
 Head I Mounting Crankshaft lengthwise Lubrication Pressure
 Bore and stroke 3 7/8" x 5 1/4" Rated R.P.M. 1450
 Port diameter valves: Inlet 1.500" Exhaust 1.312"
 Magneto: (For starting only) Make Own Model H-4
 Carburetor: (For starting only) Make Own Model F Size 3/4"
 Governor: Make Bosch Type Variable speed, centrifugal
 Fuel Injection System: Make Bosch Serial No. 85286 Model APE4A 80N320 S511
 Air Cleaner: Make Donaldson Type Oil-washed, wire screen filter
 Oil Filter: Make Motor Improvements, Inc. Type Partial flow with replaceable
bakelite impregnated paper element.
 Cooling medium temperature control: Bishop and Babcock thermostat and Defiance
radiator shutters

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

1. 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 fuel pumps set to develop approximately 34.8 observed belt horsepower (selected by the manufacturer) 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 the same setting.

	<u>DRAWBAR</u>	<u>BELT</u>
2. Observed maximum horsepower (tests F & B)	31.05	35.02
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	33.04	36.56
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)	24.78	31.08

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 368.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
 Board of Tractor Test Engineers