

January 1939

Test 328: Farmall M Gasoline

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 328

Dates of test: September 11 to 21, 1939
 Name and model of tractor: McCORMICK-DILLING FARMALL M (Gasoline)
 Manufacturer: International Harvester Company, Chicago, Illinois
 Manufacturer's rating: NOT RATED

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

| H. P. | Crank shaft speed R.P.M. | Fuel Consumption | | | Water used gal. per hr. | Temp. Deg. F. | | Barometer Inches of Mercury |
|--|--------------------------|------------------|--------------------|-------------------|-------------------------|---------------|-----|-----------------------------|
| | | Gal. per hr. | H. P. hr. per gal. | Lb. per H. P. hr. | | Cooling med. | Air | |
| TEST B - 100% MAXIMUM LOAD - TWO HOURS | | | | | | | | |
| 36.66 | 1451 | 2.996 | 12.24 | 0.502 | 0.000 | 198 | 95 | 28.875 |
| TEST C - OPERATING MAXIMUM LOAD - ONE HOURS | | | | | | | | |
| 36.07 | 1451 | 2.966 | 12.16 | 0.505 | 0.000 | 200 | 100 | 28.880 |
| *TEST D - ONE HOUR | | | | | | | | |
| 33.46 | 1451 | 2.834 | 11.81 | 0.520 | 0.000 | 203 | 97 | 28.885 |
| TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average) | | | | | | | | |
| 33.48 | 1453 | 2.834 | 11.81 | 0.520 | -- | 203 | 97 | -- |
| 1.51 | 1530 | 1.221 | 1.24 | 4.967 | -- | 206 | 96 | -- |
| 17.12 | 1491 | 1.998 | 8.57 | 0.717 | -- | 203 | 96 | -- |
| 35.82 | 1426 | 2.932 | 12.22 | 0.503 | -- | 200 | 95 | -- |
| 8.86 | 1530 | 1.588 | 5.58 | 1.100 | -- | 198 | 94 | -- |
| 25.34 | 1474 | 2.419 | 10.48 | 0.586 | -- | 193 | 93 | -- |
| 20.36 | 1484 | 2.165 | 9.40 | 0.653 | 0.000 | 201 | 95 | 28.890 |

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 pull pounds | Speed miles per hr. | Crank shaft speed R.P.M. | Slip on drive wheels % | Fuel Consumption | | | Water used gal. per hr. | Temp. Deg. F. | | Baromet Inches Mercury |
|--|----------------------|---------------------|--------------------------|------------------------|------------------------|---------------|------------------|-------------------------|---------------|--------|------------------------|
| | | | | | Gal. per hr. | H.P. per gal. | Lb. per H.P. hr. | | Cooling med. | Air | |
| TEST F - 100% MAXIMUM LOAD - Second - GEAR | | | | | | | | | | | |
| 33.05 | 4060 | 3.05 | 1446 | 10.46 | -----Not Recorded----- | | | 187 | 77 | 29.190 | |
| TEST G - OPERATING MAXIMUM LOAD | | | | | | | | | | | |
| 24.49 | 4233 | 2.17 | 1452 | 15.57 | -----Not Recorded----- | | | 182 | 83 | 29.170 | |
| 32.52 | 3963 | 3.08 | 1454 | 10.17 | ----- " " ----- | | | 188 | 72 | 29.205 | |
| 31.70 | 3120 | 3.81 | 1449 | 8.69 | ----- " " ----- | | | 192 | 92 | 28.870 | |
| 32.02 | 2503 | 4.80 | 1453 | 5.54 | ----- " " ----- | | | 185 | 100 | 28.840 | |
| *TEST H - ONE HOURS - Second - GEAR | | | | | | | | | | | |
| 26.23 | 3102 | 3.17 | 1450 | 7.22 | 2.495 | 10.51 | 0.584 | 0.000 | 190 | 89 | 29.115 |

* Formerly called RATED LOAD: see REMARKS 4, page 3.

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FUEL, OIL, AND TIME

Fuel Gasoline Octane 70 Weight per gallon 6.14 pounds

Oil: S.A.E. No. 20 To motor 2.090 gal. Drained from motor 1.722 gal.

Total time motor was operated 53 hours

BRIEF SPECIFICATIONS

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 sponge rubber pad

Total weight as tested (with operator) 5770 pounds

MOTOR

Make Own Serial No. FBK-ME 533 Type 4 cylinder, vertical

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 1.594" Exhaust 1.438"

Magneto: Make Own Model H-4

Carburetor: Make Own Model E - 12 Size 1 1/4"

Governor: Make Own Type Variable speed, centrifugal

Air Cleaner: Make Donaldson Type Oil-washed, wire screen filter

Oil Filter: Make Purolator Type Partial flow, with replaceable

bake-lite impregnated paper element

Cooling medium temperature control: Bishop and Babcock thermostat and Pines

radiator shutters

CHASSIS

Type Tricycle Serial No. FBK-ME 533 Drive Enclosed gear

Tread width: Rear 52" - 88" Front: Top 13 1/2" Bottom 8 1/2 "

Rear tires: No. 2 Size 11.25" x 36" - 6 ply Air Pressure 16 pounds

Front tires: No. 2 Size 6.00" x 16" - 4 ply Air Pressure 25 pounds

Added weight: Per rear wheel (Cast iron 710 pounds
 (Water 246 pounds)

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REPAIRS AND ADJUSTMENTS

During the rated load drawbar test the cooling medium temperature indicator became in-operative.

REMARKS

1. 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 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 98.9% of maximum belt horsepower.

| | <u>DRAWBAR</u> | <u>BELT</u> |
|---|----------------|-------------|
| 2. Observed maximum horsepower (tests F & B) | 33.05 | 36.66 |
| 3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" hg.) | 34.44 | 39.23 |
| 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) | 25.83 | 33.35 |

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 328.

Carlton L. Zink
 Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
 Board of Tractor Test Engineers