

Tractor Test and Power Museum, The Lester F. Larsen

UNL Larsen Tractor Museum Archives

University of Nebraska - Lincoln

Year 1958

Test 666: McCormick-Farmall Model 140

Tractor Museum

University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

Department of Agricultural Engineering
Dates of test: September 3, 1958 to September 18, 1958
Manufacturer: INTERNATIONAL HARVESTER
COMPANY, CHICAGO, ILLINOIS
Manufacturer's rating: Not Rated

NEBRASKA TRACTOR TEST NO. 666

MC CORMICK FARMALL 140

BELT HORSEPOWER TESTS

| Hp | Crank shaft speed rpm | Fuel Consumption | | | Temp. Deg. F. | | | Barometer inches of mercury |
|---|-----------------------|------------------|---------------|--------------|----------------|--------------|--------------|-----------------------------|
| | | Gal per hr | Hp-hr per gal | Lb per hp-hr | Cooling medium | Air wet bulb | Air dry bulb | |
| TEST B—100% MAXIMUM POWER—TWO HOURS | | | | | | | | |
| 23.02 | 1400 | 2.021 | 11.39 | 0.540 | 170 | 70 | 78 | 28.870 |
| TEST C—OPERATING MAXIMUM POWER—ONE HOUR | | | | | | | | |
| 21.16 | 1400 | 1.722 | 12.29 | 0.500 | 167 | 72 | 81 | 28.850 |
| TEST D—RATED POWER—ONE HOUR | | | | | | | | |
| 20.61 | 1527 | 1.741 | 11.84 | 0.520 | 165 | 74 | 85 | 28.840 |
| TEST E—VARYING POWER—TWO HOURS (20 minute runs; last line average) | | | | | | | | |
| 20.62 | 1528 | 1.751 | 11.78 | 0.522 | 167 | 75 | 86 | |
| 1.29 | 1645 | 0.776 | 1.66 | 3.698 | 140 | 75 | 86 | |
| 10.90 | 1610 | 1.234 | 8.83 | 0.696 | 156 | 75 | 86 | |
| 21.17 | 1400 | 1.756 | 12.06 | 0.510 | 171 | 76 | 88 | |
| 5.57 | 1643 | 0.980 | 5.68 | 1.083 | 147 | 76 | 89 | |
| 15.92 | 1569 | 1.488 | 10.70 | 0.575 | 167 | 76 | 90 | |
| 12.58 | 1566 | 1.331 | 9.45 | 0.651 | 158 | 75 | 87 | 28.840 |

DRAWBAR HORSEPOWER TESTS

| Hp | Draw bar pull lbs | Speed miles per hr | Crank shaft speed rpm | Slip of drive wheels % | Fuel Consumption | | | Temp. Deg. F. | | | Barometer inches of mercury |
|--|-------------------|--------------------|-----------------------|------------------------|------------------|---------------|--------------|---------------|--------------|--------------|-----------------------------|
| | | | | | Gal per hr | Hp-hr per gal | Lb per hp-hr | Cooling med | Air wet bulb | Air dry bulb | |
| TEST H—RATED POWER—TEN HOURS—2nd Gear | | | | | | | | | | | |
| 16.41 | 1486 | 4.14 | 1489 | 3.62 | 1.546 | 10.61 | 0.579 | 151 | 60 | 68 | 29.043 |
| TEST F—100% MAXIMUM POWER | | | | | | | | | | | |
| 21.25 | 2083 | 3.83 | 1402 | 5.39 | 2nd Gear | | | 165 | 62 | 72 | 28.995 |
| TEST G—OPERATING MAXIMUM POWER | | | | | | | | | | | |
| 17.77 | 3611 | 1.84 | 1406 | 13.89 | 1st Gear | | | 149 | 52 | 54 | 29.070 |
| 19.39 | 1894 | 3.84 | 1404 | 5.25 | 2nd Gear | | | 158 | 62 | 72 | 28.995 |
| 19.20 | 1406 | 5.12 | 1400 | 3.70 | 3rd Gear | | | 160 | 62 | 72 | 28.995 |
| 16.12 | 431 | 14.03 | 1405 | 0.62 | 4th Gear | | | 162 | 62 | 72 | 28.995 |
| TEST J—OPERATING MAXIMUM POWER | | | | | | | | | | | |
| 13.14 | 1851 | 3.68 | 1402 | 11.47 | 2nd Gear | | | 158 | 56 | 68 | 28.790 |
| TEST K—SPEED-PULL CHARACTERISTIC | | | | | | | | | | | |
| Pounds Pull | 1486 | 1894 | 2000 | 2000 | 2000 | 1950 | 1900 | | | | |
| hp-horsepower | 16.41 | 19.39 | 18.1 | 16.0 | 14.4 | 12.0 | 9.6 | | | | |
| Miles Per Hour | 4.14 | 3.84 | 3.4 | 3.0 | 2.7 | 2.3 | 1.9 | | | | |

TIRES, WHEELS AND WEIGHT

| | Tests F, G, H & K | Test J |
|---|-----------------------------|-----------------------------|
| Rear wheels | Pressed steel and cast iron | Pressed steel and cast iron |
| Type | | |
| Liquid ballast | 358 lb each | None |
| Added cast iron | 460 lb each | None |
| Rear tires | Two 11-24 | Two 11-24 |
| No. and size | | |
| Ply | 4 | 4 |
| Air pressure | 12 lb | 12 lb |
| Front wheels | Pressed steel | Pressed steel |
| Type | | |
| Liquid ballast | None | None |
| Added cast iron | 95 lb each | None |
| Front tires | Two 5.00-15 | Two 5.00-15 |
| No. and size | | |
| Ply | 4 | 4 |
| Air pressure | 28 lb | 28 lb |
| Height of drawbar | 17½ inches | 18½ inches |
| Static weight | | |
| Rear end | 3500 lb | 1865 lb |
| Front end | 1150 lb | 960 lb |
| Total weight as tested with operator | 4825 lb | 3000 lb |

HORSEPOWER SUMMARY

| | Drawbar | Belt |
|---|---------|-------|
| 1. Sea level (calculated) maximum horsepower (based on 60°F and 29.92" Hg) | 22.18 | 24.27 |
| 2. Observed maximum horsepower (tests F and B) | 21.25 | 23.02 |
| 3. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (ASAE and SAE ratings) | 16.64 | 20.63 |

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 666.

L. F. LARSEN
Engineer-in-Charge

L. W. HURLBUT, Chairman
G. W. STEINBRUEGGE
J. J. SULEK
Board of Tractor
Test Engineers

FUEL, OIL, WATER and TIME Fuel Gasoline Octane No. ASTM 83.6 Research 90.4 (rating taken from oil company's typical inspection data) Weight per gallon 6.150 lb Oil SAE 10W-30 To motor 1.229 gal Drained from motor 1.133 gal Water used 0.264 gal Total time motor was operated 49½ hours.

CHASSIS Type Standard Serial No. 504 J Tread width rear 40" to 68" front 44" to 70" Wheel base 71" Hydraulic control system direct engine drive Advertised speeds mph first 1.9 second 3.7 third 4.8 fourth 12.8 reverse 3.1 Belt pulley diam. 8½" face 6" rpm 1157 Belt speed 2574 fpm Belt flat Length 71' Width 6" Thickness 0.215" Maximum slip 0.56% Clutch single plate dry disc operated by foot pedal Seat upholstered seat with back rest Brakes contracting band operated by two foot pedals Equalized by locking pedals together Power take-off conventional type Steering power steering not available.

ENGINE Make International Type 4 cylinder vertical Serial No. 65044 Crankshaft mounted lengthwise Head I Lubrication pressure Bore and stroke 3½" x 4" Rated rpm 1400 Compression ratio 6.94 to 1 Displacement 122.7 cu. in. Valves port diameter Inlet 1¼" Exhaust 1½" Governor variable speed centrifugal Carburetor size ¾" Ignition system battery Starting system 6 volt battery Air cleaner oil washed wire screen Muffler was used Oil filter replaceable treated paper element Cooling medium temperature control thermostat.

REPAIRS AND ADJUSTMENTS During preliminary belt test the carburetor was dismantled and cleaned. A new high speed jet and load needle were installed to replace original parts.

REMARKS All test results 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, H, J, and K were made with an operating setting of the carburetor (selected by the manufacturer) of 92.3% of maximum belt horsepower.

During Test "H" the engine surged at each end of the test course as the pull changed.