

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.
Larsen

January 1975

Test 1172: Massey-Ferguson MF 1505 Diesel

Tractor Museum

University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Applied Mechanics Commons](#)

Museum, Tractor, "Test 1172: Massey-Ferguson MF 1505 Diesel" (1975). *Nebraska Tractor Tests*. 1494.
<https://digitalcommons.unl.edu/tractormuseumlit/1494>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

NEBRASKA TRACTOR TEST 1172 – MASSEY-FERGUSON MF 1505 DIESEL

POWER TAKE-OFF PERFORMANCE

| Hp | Crankshaft speed rpm | Fuel Consumption Gal per hr | Lb per hp-hr | Hp-hr per gal | Temperature Cooling medium | Degrees F Air wet bulb | Degrees F Air dry bulb | Barometer inches of Mercury |
|--|----------------------|-----------------------------|--------------|---------------|----------------------------|------------------------|------------------------|-----------------------------|
| MAXIMUM POWER AND FUEL CONSUMPTION | | | | | | | | |
| Rated Engine Speed—Two Hours (PTO Speed—1013 rpm) | | | | | | | | |
| 174.46 | 2800 | 12.107 | 0.480 | 14.41 | 178 | 60 | 75 | 28.700 |
| Standard Power Take-off Speed (1000 rpm)—One Hour | | | | | | | | |
| 175.95 | 2765 | 12.092 | 0.476 | 14.55 | 178 | 60 | 75 | 28.710 |
| VARYING POWER AND FUEL CONSUMPTION—Two Hours | | | | | | | | |
| 151.63 | 2864 | 10.774 | 0.492 | 14.07 | 176 | 61 | 75 | |
| 0.00 | 3071 | 4.204 | | | 169 | 60 | 73 | |
| 78.72 | 2977 | 7.602 | 0.668 | 10.36 | 173 | 60 | 74 | |
| 175.35 | 2800 | 12.109 | 0.478 | 14.48 | 179 | 62 | 77 | |
| 38.68 | 3027 | 5.751 | 1.029 | 6.73 | 171 | 61 | 74 | |
| 116.51 | 2935 | 8.729 | 0.519 | 13.35 | 174 | 61 | 75 | |
| Av 93.48 | 2945 | 8.195 | 0.607 | 11.41 | 174 | 61 | 75 | 28.673 |

DRAWBAR PERFORMANCE

| Hp | Draw-bar pull lbs | Speed miles per hr | Crankshaft speed rpm | Slip of drivers % | Fuel Consumption Gal per hr | Lb per hp-hr | Hp-hr per gal | Temp Cooling med | Degrees F Air wet bulb | Degrees F Air dry bulb | Barometer inches of Mercury |
|---|-------------------|--------------------|----------------------|-------------------|-----------------------------|--------------|---------------|------------------|------------------------|------------------------|-----------------------------|
| VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST | | | | | | | | | | | |
| Maximum Available Power—Two Hours (5th Gear) | | | | | | | | | | | |
| 146.65 | 11402 | 4.82 | 2798 | 6.07 | 11.955 | 0.564 | 12.27 | 179 | 47 | 62 | 29.010 |
| 75% of Pull at Maximum Power—Ten Hours (5th Gear) | | | | | | | | | | | |
| 117.11 | 8654 | 5.07 | 2886 | 4.76 | 10.246 | 0.606 | 11.43 | 173 | 44 | 47 | 28.956 |
| 50% of Pull at Maximum Power—Two Hours (5th Gear) | | | | | | | | | | | |
| 81.33 | 5776 | 5.28 | 2968 | 2.99 | 8.524 | 0.725 | 9.54 | 172 | 38 | 45 | 29.140 |
| 50% of Pull at Reduced Engine Speed—Two Hours (8th Gear) | | | | | | | | | | | |
| 81.16 | 5755 | 5.29 | 1781 | 2.95 | 5.779 | 0.493 | 14.04 | 172 | 42 | 55 | 29.100 |
| MAXIMUM POWER WITH BALLAST | | | | | | | | | | | |
| 103.45 | 17226 | 2.25 | 2903 | 14.74 | 2nd Gear (Lo 1 Ov'D) | 175 | 53 | 65 | 28.950 | | |
| 141.42 | 16759 | 3.16 | 2798 | 13.19 | 3rd Gear (Lo 2 Std) | 178 | 41 | 53 | 29.150 | | |
| 151.43 | 14542 | 3.91 | 2796 | 8.86 | 4th Gear (Lo 2 Ov'D) | 177 | 40 | 52 | 29.150 | | |
| 148.22 | 11519 | 4.83 | 2801 | 6.11 | 5th Gear (Lo 3 Std) | 177 | 40 | 51 | 29.150 | | |
| 149.29 | 9764 | 5.73 | 2799 | 5.03 | 6th Gear (Lo 3 Ov'D) | 177 | 40 | 50 | 29.150 | | |
| 154.10 | 8284 | 6.98 | 2799 | 4.15 | 7th Gear (Hi 1 Std) | 177 | 40 | 49 | 29.150 | | |

VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST—(5th Gear)

| | | | | | | | |
|----------------------|--------|--------|--------|--------|--------|-------|-------|
| Pounds Pull | 11519 | 12715 | 15133 | 16151 | 16681 | 16903 | 16176 |
| Horsepower | 148.22 | 145.72 | 139.04 | 130.43 | 117.14 | 98.19 | 79.19 |
| Crankshaft Speed rpm | 2801 | 2519 | 2256 | 1951 | 1673 | 1397 | 1113 |
| Miles Per Hour | 4.83 | 4.30 | 3.81 | 3.23 | 2.72 | 2.21 | 1.76 |
| Slip of Drivers % | 6.11 | 7.09 | 7.91 | 9.65 | 11.46 | 13.91 | 13.91 |

TRACTOR SOUND LEVEL (with cab)

| | dB(A) |
|---|-------|
| Maximum Available Power 2 Hours | 85.5 |
| 75% of Pull at Max. Power 10 Hours | 85.5 |
| 50% of Pull at Max. Power 2 Hours | 85.5 |
| 50% of Pull at Reduced Engine Speed 2 Hours | 83.5 |
| Bystander 12th Gear (Hi 3 Ov'D) | 92.5 |

TIRES, BALLAST AND WEIGHT

| | With Ballast | Without Ballast |
|---|-----------------------|--------------------|
| Rear Tires | —No., size, ply & psi | Two 23.1-30; 8; 16 |
| Ballast | —Liquid | 1490 lb each |
| | Cast Iron | None |
| Front Tires | —No., size, ply & psi | Two 23.1-30; 8; 16 |
| Ballast | —Liquid | None |
| | Cast Iron | None |
| Height of Drawbar | 20 inches | 20 inches |
| Static weight with operator—rear | 9160 lb | 6170 lb |
| front | 11810 lb | 11790 lb |
| total | 20970 lb | 17960 lb |

Department of Agricultural Engineering

Dates of Test: April 3 to April 18, 1975

Manufacturer: MASSEY-FERGUSON, INC., DETROIT, MICHIGAN

FUEL, OIL AND TIME Fuel No 2 Diesel Cetane No 51.7 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.8314 Weight per gallon 6.922 lb Oil SAE 30W API service classification SB/SE-CA/CC (MS-DM) To motor 2.666 gal Drained from motor 1.808 gal Transmission and final drive lubricant Massey-Ferguson Permatran Total time engine was operated 57 hours

ENGINE Make Caterpillar Diesel 3208 Type eight cylinder Vee Serial No 90N4069 Crankshaft Mounted lengthwise Rated rpm 2800 Bore and stroke 4.5" x 5.0" Compression ratio 16.5 to 1 Displacement 636 cu in Cranking system 12 volt electric Lubrication pressure Air cleaner dry type with replaceable pleated paper element with automatic dust unloader Oil filter full flow with two replaceable screw on paper cartridges Oil cooler engine coolant heat exchanger Fuel filter replaceable pleated screw-on cartridge Muffler upright muffler Cooling medium temperature control two thermostats

CHASSIS Type Four wheel drive Serial No 9C 003872 Tread width rear 68" to 88" front 68" to 88" Wheel base 120" Center of gravity (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 45" Vertical distance above roadway 41" Horizontal distance from center of rear wheel tread 0" to the right/left Hydraulic control system direct engine drive Transmission selective gear fixed ratio Advertised speeds mph first 2.1 second 2.5 third 3.6 fourth 4.2 fifth 5.0 sixth 5.9 seventh 7.1 eighth 8.4 ninth 12.0 tenth 14.1 eleventh 16.9 twelfth 19.8 reverse 1.4, 1.6, 5.3 and 6.3 Clutch single dry disc operated by a foot pedal Brakes internal expanding shoe actuated hydraulically by a foot pedal Steering hydrostatic Turning radius (on concrete surface without brake) right 204" left 204" Turning space diameter (on concrete surface without brake) right 431" left 431" Power take-off 1000 rpm at 2765 engine rpm

REPAIRS AND ADJUSTMENTS: Following the PTO runs it was necessary to replace the left exhaust pipe gasket and retorque the flange bolts.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure.

First gear was not run as it was necessary to limit the pull in second gear to avoid excessive wheel slippage.

Fuel temperature at injection pump return was 147 degrees F.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1172.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers