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January 1975

Test 1173: Massey-Ferguson 1805 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1173 – MASSEY-FERGUSON 1805 DIESEL

POWER TAKE-OFF PERFORMANCE

Hp	Crank- shaft speed rpm	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temperature Degrees F Cooling medium	Air wet bulb	Air dry bulb	Barometer inches of Mercury
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1013 rpm)								
192.65	2800	13.030	0.468	14.79	188	61	75	88.857
Standard Power Take-off Speed (1000 rpm)—One Hour								
191.60	2765	12.975	0.469	14.77	187	61	75	28.855
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
167.49	2865	11.277	0.466	14.85	178	60	75	.....
0.00	3036	4.117	.....	.....	169	59	74	.....
86.69	2969	7.485	0.598	11.58	176	60	75	.....
191.26	2801	12.985	0.470	14.73	190	61	76	.....
44.12	3011	5.565	0.873	7.93	172	60	75	.....
127.98	2918	9.444	0.511	13.55	178	61	75	.....
Av 102.92	2933	8.479	0.570	12.14	177	60	75	28.853

DRAWBAR PERFORMANCE

Hp	Draw- bar pull lbs	Speed miles per hr	Crank- shaft speed rpm	Slip of drivers %	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temp Degrees F Cool- ing med	Air wet bulb	Air dry bulb	Barometer inches of Mercury
VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST											
Maximum Available Power—Two Hours 5th Gear (Lo 3 Std)											
162.95	12763	4.79	2798	6.70	12.767	0.542	12.76	179	44	53	28.950
75% of Pull at Maximum Power—Ten Hours 5th Gear (Lo 3 Std)											
131.41	9743	5.06	2888	4.46	10.586	0.558	12.41	177	61	68	28.322
50% of Pull at Maximum Power—Two Hours 5th Gear (Lo 3 Std)											
90.28	6464	5.24	2952	3.11	8.379	0.642	10.77	177	60	70	28.695
50% of Pull at Reduced Engine Speed—Two Hours 8th Gear (Hi 1 Ov'D)											
90.77	6480	5.25	1772	2.92	6.122	0.467	14.83	177	71	73	28.615

MAXIMUM POWER WITH BALLAST

155.20	18781	3.10	2794	14.66	3rd Gear (Lo 2 Std)	181	43	54	28.900
167.55	16145	3.89	2798	9.05	4th Gear (Lo 2 Ov'D)	179	44	57	28.895
167.06	13082	4.79	2800	6.66	5th Gear (Lo 3 Std)	179	42	53	28.880
167.59	11017	5.70	2808	5.17	6th Gear (Lo 3 Ov'D)	179	42	53	28.880
170.17	9187	6.95	2800	4.22	7th Gear (Hi 1 Std)	180	43	55	28.910
166.62	7582	8.24	2800	3.41	8th Gear (Hi 1 Ov'D)	179	44	55	28.890

VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST—5th Gear (Lo 3 Std)

Pounds Pull	13082	13982	14951	16108	16755	17226	17171	16432
Horsepower	167.06	160.74	150.62	139.46	123.42	104.40	84.12	60.93
Crankshaft Speed rpm	2800	2538	2242	1954	1677	1395	1124	847
Miles Per Hour	4.79	4.31	3.78	3.25	2.76	2.27	1.84	1.39
Slip of Drivers %	6.66	7.22	8.18	9.51	10.17	11.06	10.94	10.42

TRACTOR SOUND LEVEL (with cab) db (A)

Maximum Available Power 2 Hours	86.5
75% of Pull at Max. Power 10 Hours	86.5
50% of Pull at Max. Power 2 Hours	86.5
50% of Pull at Reduced Engine Speed 2 Hours	82.5
Bystander 11th Gear (Hi 3 Std)	93.0

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi	Two 23.1-30; 8; 16
Ballast	—Liquid	1570 lb each
	Cast iron	97 lb each
Front Tires	—No., size, ply & psi	Two 23.1-30; 8; 16
Ballast	—Liquid	530 lb each
	Cast iron	195 lb each
Height of Drawbar	20 inches	20 inches
Static weight with operator—rear	9500 lb	6160 lb
front	13290 lb	11840 lb
total	22790 lb	18000 lb

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
H. W. Ottoson, Director

Department of Agricultural Engineering

Dates of Test: April 3 to April 23, 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 30 API service classification** SB/SE-CA/CC (MS-DM) **To motor** 3.225 gal **Drained from motor** 1.603 gal **Transmission and final drive lubricant** Massey-Ferguson Permatran **Total time engine was operated** 59 hours

ENGINE Make Caterpillar Diesel 3208 Type eight cylinder vee **Serial No** 90 N 6966 **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 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 003752 **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 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** 1030 rpm at 2765 engine rpm.

REPAIRS AND ADJUSTMENTS: During the break-in the shifting fork lock screw came loose and the transmission was locked in second gear. This was corrected and test continued. During the Maximum gear run one of the bolts holding the exhaust pipe to the left exhaust manifold broke. A new bolt and gasket was installed and test continued.

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

The tractor did not meet manufacturer's claim of 183.6 estimated drawbar horsepower.

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

Bystander sound test was run in 11th gear as tractor engine did not reach maximum rpm during acceleration in highest gear.

Fuel temperature at injection pump return was 146 degrees F.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1173.

L. F. LARSEN

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers