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## Test 1173: Massey-Ferguson 1805 Diesel

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# NEBRASKA TRACTOR TEST 1173 – MASSEY-FERGUSON 1805 DIESEL

Department of Agricultural Engineering

Dates of Test: April 3 to April 23, 1975

Manufacturer: MASSEY-FERGUSON INC., DETROIT, MICHIGAN

## POWER TAKE-OFF PERFORMANCE

Hp	Crankshaft speed rpm	Fuel Consumption		Hp-hr per gal	Temperature Degrees F			Barometer inches of Mercury
		Gal per hr	Lb per hp-hr		Cooling medium	Air wet bulb	Air dry bulb	
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>								
<b>Rated Engine Speed—Two Hours (PTO Speed—1013 rpm)</b>								
192.65	2800	13.030	0.468	14.79	188	61	75	88.857
<b>Standard Power Take-off Speed (1000 rpm)—One Hour</b>								
191.60	2765	12.975	0.469	14.77	187	61	75	28.855
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
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	.....
<b>Av 102.92</b>	<b>2933</b>	<b>8.479</b>	<b>0.570</b>	<b>12.14</b>	<b>177</b>	<b>60</b>	<b>75</b>	<b>28.853</b>

## DRAWBAR PERFORMANCE

Hp	Drawbar pull lbs	Speed miles per hr	Crankshaft speed rpm	Fuel Consumption		Hp-hr per gal	Temp Degrees F			Barometer inches of Mercury
				Slip of drivers %	Gal per hr		Lb per hp-hr	Cooling med	Air wet bulb	

### VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST

<b>Maximum Available Power—Two Hours 5th Gear (Lo 3 Std)</b>											
162.95	12763	4.79	2798	6.70	12.767	0.542	12.76	179	44	53	28.950
<b>75% of Pull at Maximum Power—Ten Hours 5th Gear (Lo 3 Std)</b>											
131.41	9743	5.06	2888	4.46	10.586	0.558	12.41	177	61	68	28.322
<b>50% of Pull at Maximum Power—Two Hours 5th Gear (Lo 3 Std)</b>											
90.28	6464	5.24	2952	3.11	8.379	0.642	10.77	177	60	70	28.695
<b>50% of Pull at Reduced Engine Speed—Two Hours 8th Gear (Hi 1 Ov'D)</b>											
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
<b>Rear Tires</b>	—No., size, ply & psi	Two 23.1-30; 8; 16
<b>Ballast</b>	—Liquid	1570 lb each
	—Cast iron	97 lb each
<b>Front Tires</b>	—No., size, ply & psi	Two 23.1-30; 8; 16
<b>Ballast</b>	—Liquid	530 lb each
	—Cast iron	195 lb each
<b>Height of Drawbar</b>	20 inches	20 inches
<b>Static weight with operator—rear</b>	9500 lb	6160 lb
	front	13290 lb
	total	22790 lb

**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 1020 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