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January 1975

## Test 1172: Massey-Ferguson MF 1505 Diesel

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1172 – MASSEY-FERGUSON MF 1505 DIESEL

## POWER TAKE-OFF PERFORMANCE

Hp	Crank- shaft 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>								
<b>Rated Engine Speed—Two Hours (PTO Speed—1013 rpm)</b>								
174.46	2800	12.107	0.480	14.41	178	60	75	28.700
<b>Standard Power Take-off Speed (1000 rpm)—One Hour</b>								
175.95	2765	12.092	0.476	14.55	178	60	75	28.710
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours</b>								
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	Crank- shaft speed rpm	Slip of drivers %	Fuel Consumption Gal per hr	Lb per hp-hr	Hp-hr per gal	Temp Cool- ing med	Degrees F Air wet bulb	Degrees F Air dry bulb	Barometer inches of Mercury
<b>VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST</b>											
<b>Maximum Available Power—Two Hours (5th Gear)</b>											
146.65	11402	4.82	2798	6.07	11.955	0.564	12.27	179	47	62	29.010
<b>75% of Pull at Maximum Power—Ten Hours (5th Gear)</b>											
117.11	8654	5.07	2886	4.76	10.246	0.606	11.43	173	44	47	28.956
<b>50% of Pull at Maximum Power—Two Hours (5th Gear)</b>											
81.33	5776	5.28	2968	2.99	8.524	0.725	9.54	172	38	45	29.140
<b>50% of Pull at Reduced Engine Speed—Two Hours (8th Gear)</b>											
81.16	5755	5.29	1781	2.95	5.779	0.493	14.04	172	42	55	29.100
<b>MAXIMUM POWER WITH BALLAST</b>											
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	13682	15133	16151	16681	16903	16176
Horsepower	148.22	145.72	139.04	130.43	117.14	98.19	79.19	58.20
Crankshaft Speed rpm	2801	2519	2256	1951	1673	1397	1113	839
Miles Per Hour	4.83	4.30	3.81	3.23	2.72	2.21	1.76	1.35
Slip of Drivers %	6.11	7.09	7.91	9.65	11.46	13.91	13.91	12.45

## 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
<b>Rear Tires</b>	Two 23.1-30; 8; 16	Two 23.1-30; 8; 16
<b>Ballast</b>	1490 lb each	None
	None	None
<b>Front Tires</b>	Two 23.1-30; 8; 16	Two 23.1-30; 8; 16
<b>Ballast</b>	None	None
	None	None
<b>Height of Drawbar</b>	20 inches	20 inches
<b>Static weight with operator—rear</b>	9160 lb	6170 lb
<b>front</b>	11810 lb	11790 lb
<b>total</b>	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 retorqued 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