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January 1971

Test 1087: Massey-Ferguson MF 1800 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1087 – MASSEY-FERGUSON MF 1800 DIESEL

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 Cooling med	Degrees F Air wet bulb	Air dry bulb	Barometer inches of Mercury
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VARYING DRAWBAR POWER AND FUEL CONSUMPTION WITH BALLAST

Maximum Available Power—Two Hours—5th Gear (Lo 3 Std)											
171.37	13242	4.85	2795	6.15	12.912	0.520	13.27	180	45	55	29.025

75% of Pull at Maximum Power—Ten Hours—5th Gear (Lo 3 Std)											
143.47	10475	5.14	2902	4.36	10.636	0.511	13.49	175	45	56	29.174

50% of Pull at Maximum Power—Two Hours—5th Gear (Lo 3 Std)											
97.23	6841	5.33	2974	2.98	8.149	0.578	11.93	172	51	58	28.540

50% of Pull at Reduced Engine Speed—Two Hours—8th Gear (Hi 1 Ov'D)											
97.94	6887	5.33	1782	2.82	6.248	0.440	15.68	190	55	65	28.540

MAXIMUM POWER WITH BALLAST

156.06	18432	3.18	2841	14.86	3rd Gear (Lo 2 Std)		195	51	62	29.020
178.59	17109	3.91	2795	9.22	4th Gear (Lo 2 Ov'D)		195	49	59	29.020
178.70	13734	4.88	2803	5.83	5th Gear (Lo 3 Std)		180	51	65	29.000
180.03	11632	5.80	2799	4.66	6th Gear (Lo 3 Ov'D)		180	52	68	29.020
183.65	9745	7.07	2800	3.70	7th Gear (Hi 1 Std)		180	51	67	29.020
182.30	8157	8.38	2803	3.09	8th Gear (Hi 1 Ov'D)		180	51	68	29.020

MAXIMUM PULL WITHOUT BALLAST

151.66	15045	3.78	2855	14.86	4th Gear (Lo 2 Ov'D)		158	58	64	28.820
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VARYING DRAWBAR PULL AND TRAVEL SPEED WITH BALLAST 5th Gear (Lo 3 Std)

Pounds Pull	13734	14644	15403	15946	16266	16460	16351
Horsepower	178.70	169.76	158.44	141.62	123.16	103.74	82.28
Crankshaft Speed rpm	2803	2517	2247	1957	1677	1400	1118
Miles Per Hour	4.88	4.35	3.86	3.33	2.84	2.36	1.89
Slip of Drivers %	5.83	6.68	7.24	7.94	8.48	8.75	8.75

TRACTOR SOUND LEVEL (with cab) dB(A)

Maximum Available Power 2 Hours	88.5
75% of Pull at Max. Power 10 Hours	89.5
50% of Pull at Max. Power 2 Hours	90.5
50% of Pull at Reduced Engine Speed 2 Hours	83.5
Bystander 12th Gear (Hi 3 Ov'D)	92.0

TIRES, BALLAST and WEIGHT

		With Ballast	Without Ballast
Rear tires	—No, size, ply & psi	Two 23.1-30; 8; 16	Two 23.1-30; 8; 16
Ballast	—Liquid	1335 lb each	None
	Cast iron	290 lb each	None
Front tires	—No, size, ply & psi	Two 23.1-30; 8; 16	Two 23.1-30; 8; 16
Ballast	—Liquid	590 lb each	None
	Cast iron	None	None
Height of drawbar		20 inches	21½ inches
Static weight with operator—rear		9240 lb	5990 lb
	front	12520 lb	11340 lb
	total	21760 lb	17330 lb

Department of Agricultural Engineering

Dates of Test: November 4 to November 17, 1971

Manufacturer: MASSEY-FERGUSON INC., DETROIT, MICHIGAN

FUEL, OIL and TIME Fuel No 2 Diesel Cetane No. 53.5 (rating taken from oil company's typical inspection data) Specific gravity converted to 60°/60° 0.8290 Weight per gallon 6.902 lb Oil SAE 20-20W API service classification MS DS To motor 2.175 gal Drained from motor 1.751 gal Transmission and final drive lubricant MF Special M-1129A and EP90 Hypoid MS M-2105B Total time engine was operated 42½ hours.

ENGINE Make Caterpillar Diesel Type eight cylinder Vee Serial No 98M1111 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 pre-cleaner and replaceable dry type treated paper element Oil filter full flow with two replaceable paper screw-on cartridges Oil Cooler engine coolant heat exchanger Fuel filter replaceable paper screw-on cartridge Muffler was used Cooling medium temperature control two thermostats.

CHASSIS Type four-wheel drive Serial No 9C001396 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 44.6" Vertical distance above roadway 40.8" 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 2.11 second 2.48 third 3.55 fourth 4.18 fifth 5.01 sixth 5.89 seventh 7.10 eighth 8.35 ninth 11.96 tenth 14.06 eleventh 16.85 twelfth 19.81 reverse 1.4, 1.6, 5.3, 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 none.

REPAIRS and ADJUSTMENTS no repairs or adjustments.

REMARKS All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. First, second and third gears were not run as it was necessary to limit the pull in fourth gear to avoid excessive wheel slippage. Ninth, tenth, eleventh and twelfth gears were not run as test procedure permits a maximum of six travel speeds.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1087.

L. F. LARSEN

Engineer-in-charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

D. E. LANE

Board of Tractor Test Engineers

The University of Nebraska Agricultural Experiment Station
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