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Test 1392: Massey-Ferguson MF 184-4 Diesel 12-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1392 — MASSEY FERGUSON MF 184-4 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb	
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—611 rpm)								
62.45 (46.57)	2200	4.067 (15.395)	0.456 (0.278)	15.35 (3.025)	201 (93.7)	60 (15.6)	75 (23.9)	28.900 (97.591)
Standard Power take-off Speed (540 rpm)—One Hour								
59.56 (44.41)	1943	3.629 (13.737)	0.427 (0.260)	16.41 (3.233)	203 (94.8)	61 (15.9)	76 (24.4)	28.900 (97.591)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
54.71 (40.80)	2266	3.626 (13.726)	0.465 (0.283)	15.09 (2.972)	190 (87.5)	60 (15.6)	74 (23.3)	..... .....
0.00 (0.00)	2362	1.567 (5.932)	..... .....	..... .....	151 (66.1)	60 (15.6)	75 (23.6)	..... .....
28.04 (20.91)	2324	2.286 (8.653)	0.571 (0.348)	12.26 (2.417)	166 (74.4)	60 (15.6)	75 (23.6)	..... .....
62.86 (46.87)	2200	4.097 (15.509)	0.457 (0.278)	15.34 (3.022)	197 (91.7)	61 (15.8)	76 (24.2)	..... .....
14.28 (10.65)	2368	1.858 (7.033)	0.912 (0.555)	7.68 (1.514)	160 (70.8)	60 (15.6)	75 (23.9)	..... .....
41.56 (30.99)	2295	2.856 (10.811)	0.482 (0.293)	14.55 (2.867)	175 (79.4)	61 (16.1)	75 (23.9)	..... .....
Av 33.58 Av (25.04)	2302	2.715 (10.277)	0.567 (0.345)	12.37 (2.437)	173 (78.3)	60 (15.7)	75 (23.8)	28.913 (97.636)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Cool- ing med	Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)		Air wet bulb	Air dry bulb		
Maximum Available Power—Two Hours 9th Gear												
50.41 (37.59)	3356 (14.93)	5.63 (9.06)	2200	7.07	3.996 (15.127)	0.555 (0.338)	12.61 (2.485)	191 (88.1)	53 (11.4)	70 (20.8)	28.920 (97.660)	
75% of Pull at Maximum Power—Ten Hours 9th Gear												
41.25 (30.76)	2589 (11.51)	5.98 (9.62)	2284	5.05	3.407 (12.898)	0.579 (0.352)	12.11 (2.385)	181 (82.9)	56 (13.1)	69 (20.6)	28.814 (97.301)	
50% of Pull at Maximum Power—Two Hours 9th Gear												
28.41 (21.19)	1726 (7.68)	6.17 (9.93)	2323	3.55	2.658 (10.062)	0.655 (0.399)	10.69 (2.106)	160 (71.1)	56 (13.3)	62 (16.4)	28.755 (97.100)	
50% of Pull at Reduced Engine Speed—Two Hours 11th Gear												
28.60 (21.33)	1731 (7.70)	6.19 (9.97)	1475	3.22	2.052 (7.766)	0.503 (0.306)	13.94 (2.747)	169 (76.1)	56 (13.3)	66 (18.6)	28.770 (97.150)	
MAXIMUM POWER IN SELECTED GEARS												
49.08 (36.60)	5500 (24.47)	3.35 (5.38)	2232	14.94	7th Gear			171 (76.9)	43 (6.1)	47 (8.3)	29.090 (98.230)	
52.20 (38.93)	4434 (19.72)	4.42 (7.11)	2199	9.66	8th Gear			182 (83.3)	52 (11.1)	64 (17.8)	28.930 (97.690)	
51.85 (38.66)	3447 (15.33)	5.64 (9.08)	2201	6.98	9th Gear			180 (82.2)	50 (10.0)	59 (15.0)	28.910 (97.620)	
52.38 (39.06)	2756 (12.26)	7.13 (11.47)	2200	5.55	10th Gear			182 (83.3)	52 (11.1)	65 (18.3)	28.930 (97.690)	
51.37 (38.30)	2102 (9.35)	9.16 (14.75)	2201	4.14	11th Gear			182 (83.3)	52 (11.1)	67 (19.4)	28.920 (97.660)	
LUGGING ABILITY IN 9th GEAR												
Crankshaft Speed rpm				2201	1980	1763	1544	1314	1098	874		
Pull—lbs (kN)				3447 (15.33)	3735 (16.62)	3957 (17.60)	4198 (18.67)	4261 (18.95)	4407 (19.60)	4246 (18.89)		
Increase in Pull %				0	8	15	22	24	28	23		
Power—Hp (kW)				51.85 (38.66)	50.17 (37.41)	47.06 (35.09)	43.46 (32.41)	37.41 (27.89)	32.18 (24.00)	24.78 (18.48)		
Speed—Mph (km/h)				5.64 (9.08)	5.04 (8.11)	4.46 (7.18)	3.88 (6.25)	3.29 (5.30)	2.74 (4.41)	2.19 (3.52)		
Slip %				6.98	7.71	8.07	8.78	9.02	9.49	9.14		

Department of Agricultural Engineering

Dates of Test: May 11-20, 1981

Manufacturer: MASSEY FERGUSON S.P.A.
LANDINI DIVISION Via Matteotti 17, 42042
Fabbrico (RE) Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 46.3 (rating taken from oil company's
inspection data) Specific gravity converted to 60°/
60° (15°/15°) 0.8416 Fuel weight 7.007 lbs/gal
(0.840 kg/l) Oil SAE 20-20W API service classi-
fication CC/SE To motor 1.725 gal (6.530 l)
Drained from motor 1.381 gal (5.228 l) Trans-
mission and final drive lubricant M. F. Permat-
ran fluid Total time engine was operated 44.5
hours

ENGINE: Make Perkins Diesel Type four
cylinder vertical Serial No. LD22574U657285G
Crankshaft lengthwise Rated rpm 2200 Bore
and stroke 3.875" × 5.0" (98.4 mm × 127.0 mm)
Compression ratio 16 to 1 Displacement 236 cu
in (3865 ml) Starting system 12 volt Lubrication
pressure Air cleaner oil bath with centrifugal
precleaner Oil filter one full flow paper
cartridge Fuel filter one paper element Muffler
vertical Cooling medium temperature control
one thermostat.

CHASSIS: Type front wheel assist Serial No.
2204365 Tread width rear 59.1" (1500 mm) to
78.7" (2000 mm) front 60.0" (1525 mm) Wheel base
87.0" (2210 mm) Center of gravity (without oper-
ator or ballast, with minimum tread, with fuel tank
filled and tractor serviced for operation) Horizon-
tal distance forward from center-line of rear
wheels 34.1" (866 mm) Vertical distance above
roadway 29.2" (742 mm) Horizontal distance from
center of rear wheel tread 0" (0 mm) to the right/
left Hydraulic control system direct engine
drive Transmission selective gear fixed ratio
Advertised speeds mph (km/h) first 0.8 (1.3)
second 1.3 (2.0) third 1.6 (2.6) fourth 2.0 (3.2)
fifth 2.5 (4.0) sixth 3.1 (5.0) seventh 3.9 (6.3)
eighth 4.9 (7.9) ninth 6.1 (9.8) tenth 7.6 (12.2)
eleventh 9.6 (15.5) twelfth 15.0 (24.2) reverse 2.1
(3.4), 3.3 (5.3), 4.2 (6.7), 6.5 (10.5) Clutch dry disc
operated by foot pedal Brakes dry disc operated
by two foot pedals which can be locked together
and hand lever Steering hydrostatic Turning
radius (on concrete surface with brake applied)
right 180.5" (4.58 m) left 180.5" (4.58 m) (on con-
crete surface without brake) right 196.5" (4.99 m)
left 196.5" (4.99 m) Turning space diameter (on
concrete surface with brake applied) right 372"
(9.45 m) left 372" (9.45 m) (on concrete surface
without brake) right 405" (10.29 m) left 405"
(10.29 m) Power take-off 540 rpm at 1943 engine
rpm.

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. Temperature at injection pump was

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB (A)
Maximum Available Power—Two Hours	100.5	100.5
75% of Pull at Maximum Power—Ten Hours		98.5
50% of Pull at Maximum Power—Two Hours		97.0
50% of Pull at Reduced Engine Speed—Two Hours		93.5
Bystander in 12th gear		87.0

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar • pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th Gear											
51.04 (38.06)	3285 (14.61)	5.83 (9.38)	2200	5.03	4.014 (15.194)	0.551 (0.335)	12.72 (2.505)	195 (90.3)	54 (11.9)	71 (21.4)	28.900 (97.590)

MAXIMUM POWER IN SELECTED GEARS

41.89 (31.24)	7106 (31.61)	2.21 (3.56)	2276	14.94	5th Gear			165 (73.6)	53 (11.7)	57 (13.9)	28.760 (97.120)
53.50 (39.90)	4352 (19.36)	4.61 (7.42)	2198	6.74	8th Gear			182 (83.3)	51 (10.6)	63 (17.2)	28.930 (97.690)
52.59 (39.22)	3383 (15.05)	5.83 (9.38)	2201	5.03	9th Gear			183 (83.9)	51 (10.6)	61 (16.1)	28.920 (97.660)

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires		
—No., size, ply & psi (kPa)	Two 16.9-30; 6; 18 (125)	Two 16.9-30; 6; 18 (125)
—Liquid (each)	480 lb (218 kg)	None
—Cast Iron (each)	None	None
Front Tires		
—No., size, ply & psi (kPa)	Two 11.2-24; 6; 18 (125)	Two 11.2-24; 6; 18 (125)
—Liquid (each)	218 lb (99 kg)	None
—Cast Iron (each)	None	None
Height of Drawbar	20 in (510 mm)	20 in (510 mm)
Static Weight with Operator—Rear	4840 lb (2196 kg)	3880 lb (1760 kg)
Front	2935 lb (1331 kg)	2500 lb (1134 kg)
Total	7775 lb (3527 kg)	6380 lb (2894 kg)

166°F (74.3°C). Five gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1392.

LOUIS I. LEVITICUS
Engineer-in Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Massey Ferguson MF 184-4 Diesel