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Test 1364: Massey-Ferguson MF205-4 Diesel 6-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1364 — MASSEY-FERGUSON MF205-4 DIESEL 6 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—548 rpm)									
16.40 (12.23)	2400	1.289 (4.879)	0.548 (0.333)	12.73 (2.507)	189 (87.0)	65 (18.2)	75 (23.8)	28.870 (97.490)	
*	Standard Power Take-off Speed (540 rpm)—One Hour								
	16.18 (12.07)	2366	1.261 (4.773)	0.544 (0.331)	12.83 (2.529)	189 (87.2)	65 (18.3)	75 (24.1)	28.880 (97.523)
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
14.38 (10.72)	2478	1.165 (4.410)	0.565 (0.344)	12.34 (2.431)	183 (83.6)	65 (18.3)	75 (23.9)	..... .....
0.00 (0.00)	2568	0.507 (1.919)	..... .....	..... .....	146 (63.3)	65 (18.3)	75 (23.9)	..... .....
7.30 (5.44)	2516	0.821 (3.108)	0.785 (0.478)	8.89 (1.750)	161 (71.7)	65 (18.3)	75 (23.9)	..... .....
16.44 (12.26)	2401	1.294 (4.898)	0.549 (0.334)	12.70 (2.503)	188 (86.7)	65 (18.3)	75 (23.9)	..... .....
3.70 (2.76)	2546	0.667 (2.525)	1.257 (0.765)	5.55 (1.093)	155 (68.1)	66 (18.6)	76 (24.2)	..... .....
10.86 (8.10)	2493	0.981 (3.713)	0.630 (0.383)	11.08 (2.182)	170 (76.7)	65 (18.3)	75 (23.9)	..... .....
Av Av	8.78 (6.55)	2500	0.906 (3.430)	0.720 (0.438)	9.69 (1.910)	167 (75.0)	65 (18.4)	75 (23.9)	28.860 (97.456)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					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	
Maximum Available Power—Two Hours 5th (H2) Gear											
12.78 (9.53)	983 (4.37)	4.87 (7.84)	2400	5.55	1.272 (4.816)	0.695 (0.423)	10.04 (1.978)	184 (84.2)	60 (15.6)	78 (25.3)	29.070 (98.165)
75% of Pull at Maximum Power—Ten Hours 5th (H2) Gear											
10.73 (8.00)	785 (3.49)	5.13 (8.25)	2484	4.04	1.122 (4.246)	0.729 (0.444)	9.57 (1.885)	174 (78.9)	58 (14.3)	75 (23.8)	28.937 (97.716)
50% of Pull at Maximum Power—Two Hours 5th (H2) Gear											
7.33 (5.47)	525 (2.33)	5.24 (8.44)	2515	3.08	0.914 (3.459)	0.869 (0.529)	8.02 (1.581)	148 (64.4)	49 (9.4)	58 (14.4)	28.835 (97.371)
50% of Pull at Reduced Engine Speed—Two Hours 6th (H3) Gear											
7.40 (5.52)	528 (2.35)	5.26 (8.46)	1466	2.72	0.717 (2.713)	0.676 (0.411)	10.32 (2.033)	166 (74.2)	57 (13.9)	74 (23.3)	28.850 (97.422)

MAXIMUM POWER IN SELECTED GEARS

9.91 (7.39)	2131 (9.48)	1.74 (2.81)	2494	14.84	3rd (L3) Gear			149 (64.7)	46 (7.8)	50 (10.0)	29.030 (98.030)
13.23 (9.87)	1735 (7.72)	2.86 (4.60)	2401	10.51	4th (H1) Gear			178 (81.1)	57 (13.9)	70 (21.1)	29.080 (98.199)
13.57 (10.12)	1047 (4.66)	4.86 (7.82)	2402	5.80	5th (H2) Gear			173 (78.1)	53 (11.7)	63 (17.2)	29.070 (98.165)
12.45 (9.28)	545 (2.42)	8.57 (13.79)	2401	3.15	6th (H3) Gear			181 (82.5)	58 (14.4)	73 (22.8)	29.080 (98.199)

LUGGING ABILITY IN 5th (H2) GEAR

Crankshaft Speed rpm		2402	2162	1919	1681	1440	1189
Pull—lbs (kN)		1047 (4.66)	1097 (4.88)	1215 (5.40)	1240 (5.51)	1199 (5.33)	1165 (5.18)
Increase in Pull %		0	5	16	18	14	11
Power—Hp (kW)		13.57 (10.12)	12.77 (9.52)	12.43 (9.27)	11.09 (8.27)	9.21 (6.87)	7.41 (5.52)
Speed—Mph (km/h)		4.86 (7.82)	4.36 (7.02)	3.84 (6.18)	3.35 (5.40)	2.88 (4.64)	2.39 (3.84)
Slip %		5.80	6.23	7.06	7.22	6.89	6.73

Department of Agricultural Engineering

Dates of Test: September 24 to October 9, 1980

Manufacturer: TOYOSHA COMPANY LTD, 55
Joshiji-16, Kadoma City, Osaka Japan

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 47.9 (rating taken from oil company's
inspection data) **Specific gravity converted to**
60°/60° (15°/15°) 0.8379 **Fuel weight** 6.976 lbs/gal
(0.836 kg/l) **Oil** SAE 20-20W **API service classi-**
fication SB/SE-CA/CC **To motor** 0.824 gal
(3.120 l) **Drained from motor** 0.772 gal (2.922 l)
Transmission and final drive lubricant Massey
Ferguson Permatran fluid **Total time engine was**
operated 36.5 hours

ENGINE: Make Toyosha Diesel **Type** two
cylinder vertical **Serial No.** S 107 MO 1709
Crankshaft lengthwise **Rated rpm** 2400 **Bore**
and stroke 3.46" × 3.46" (88 mm × 88 mm) **Com-**
pression ratio 23 to 1 **Displacement** 65.2 cu in
(1069 ml) **Starting system** 12 volt **Lubrication**
pressure **Air cleaner** one paper element **Oil fil-**
ter one full flow paper cartridge **Fuel filter** one
paper cartridge **Muffler** vertical **Cooling**
medium temperature control none

CHASSIS: **Type** front wheel assist **Serial No.**
00680 **Tread width** rear 35.4" (900 mm) or 40.2"
(1020 mm) front 38" (965 mm) **Wheel base** 54.9"
(1395 mm) **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
23.9" (607 mm) Vertical distance above roadway
24.9" (632 mm) Horizontal distance from center of
rear wheel tread 0" (0 mm) to the right/left **Hyd-**
raulic control system direct engine drive **Trans-**
mission selective gear fixed ratio **Advertised**
speeds mph (km/h) first 0.7 (1.1) second 1.2 (1.9)
third 2.0 (3.2) fourth 3.3 (5.3) fifth 5.4 (8.7) sixth
9.2 (14.8) reverse 1.7 (2.7), 7.7 (12.4) **Clutch** dry
disc operated by foot pedal **Brakes** drum and
shoe operated by two foot pedals which can be
locked together **Steering** mechanical **Turning**
radius (on concrete surface with brake applied)
right 86.5" (2.20 m) left 86.3" (2.19 m) (on concrete
surface without brake) right 96.5" (2.45 m) left
100.5" (2.55 m) **Turning space diameter** (on con-
crete surface with brake applied) right 186.5"
(4.74 m) left 185" (4.70 m) (on concrete surface
without brake) right 206.5" (5.25 m) left 214.5"
(5.45 m) **Power take-off** 540 rpm at 2366 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
131°F (54.7°C). Four gears were chosen between
15% slip and 10 mph (16.1 km/h).

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	95.0	95.5
75% of Pull at Maximum Power—Ten Hours		94.0
50% of Pull at Maximum Power—Two Hours		94.5
50% of Pull at Reduced Engine Speed—Two Hours		92.0
Bystander in 6th (H3) gear		77.0

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 5th (H2) Gear											
12.75 (9.50)	958 (4.26)	4.99 (8.03)	2399	4.13	1.218 (4.612)	0.667 (0.406)	10.46 (2.061)	187 (85.8)	61 (16.1)	80 (26.7)	29.060 (98.131)

MAXIMUM POWER IN SELECTED GEARS

11.86 (8.84)	2557 (11.38)	1.74 (2.80)	2461	14.73	3rd (L3) Gear			156 (68.9)	50 (10.0)	56 (13.3)	29.060 (98.131)
13.49 (10.06)	1016 (4.52)	4.98 (8.01)	2402	4.50	5th (H2) Gear			176 (80.0)	55 (12.8)	67 (19.4)	29.070 (98.165)

TIRES, BALLAST AND WEIGHT

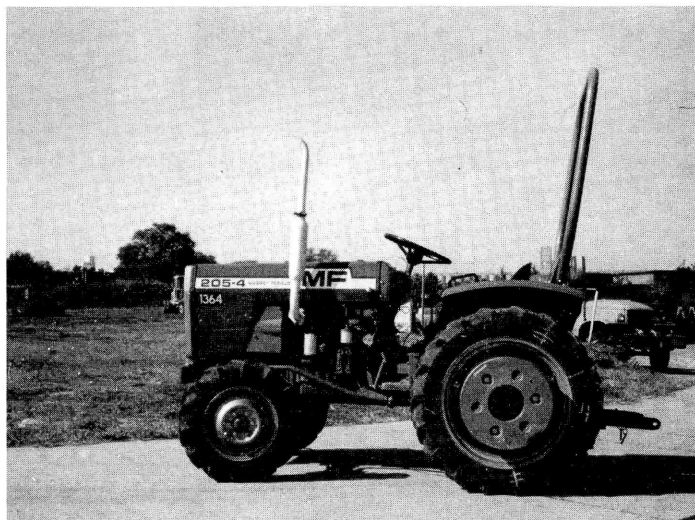
		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 8.3/8-24; 4; 16 (110)	Two 8.3/8-24; 4; 16 (110)
	—Liquid (each)	140 lb (64 kg)	None
	—Cast Iron (each)	260 lb (118 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 6-14; 4; 20 (140)	Two 6-14; 4; 20 (140)
	—Liquid (each)	None	None
	—Cast Iron (each)	53 lb (24 kg)	None
Height of Drawbar		11.5 in (290 mm)	11.5 in (290 mm)
Static Weight with Operator—Rear		2094 lb (950 kg)	1295 lb (587 kg)
	—Front	1026 lb (465 kg)	920 lb (417 kg)
	—Total	3120 lb (1415 kg)	2215 lb (1004 kg)

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1364**.

LOUIS I. LEVITICUS
Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN

Board of Tractor Test Engineers



Massey-Ferguson MF205-4 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
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