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Test 1524: Massey-Ferguson 298 Multipower Diesel 12-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1524

MASSEY FERGUSON 298 MULTIPOWER 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—1182 rpm)								
79.26 (59.10)	2000	5.419 (20.511)	0.479 (0.291)	14.63 (2.881)	185 (85.2)	66 (19.1)	75 (24.0)	28.99 (97.88)
Standard Power Take-off Speed (1000 rpm) — One hour								
74.25 (55.37)	1692	4.722 (17.874)	0.445 (0.271)	15.72 (3.098)	185 (85.1)	65 (18.4)	75 (23.9)	28.99 (97.88)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
69.91 (52.13)	2076	4.759 (18.016)	0.477 (0.290)	14.69 (2.894)	183 (83.6)	65 (18.3)	75 (23.9)	.....
0.00 (0.00)	2198	1.962 (7.427)	.....	.....	178 (81.1)	65 (18.3)	75 (23.9)	.....
36.29 (27.06)	2143	3.114 (11.789)	0.601 (0.366)	11.65 (2.296)	180 (82.2)	64 (17.5)	74 (23.3)	.....
78.98 (58.89)	2001	5.415 (20.497)	0.480 (0.292)	14.59 (2.873)	186 (85.6)	65 (18.3)	76 (24.2)	.....
18.35 (13.69)	2177	2.412 (9.129)	0.920 (0.560)	7.61 (1.499)	179 (81.7)	65 (18.3)	76 (24.2)	.....
53.31 (39.75)	2110	3.860 (14.610)	0.507 (0.308)	13.81 (2.721)	181 (82.8)	65 (18.3)	76 (24.4)	.....
Av Av	42.81 (31.92)	2117 (13.578)	3.587 (0.357)	0.587 (2.351)	11.93 (82.8)	181 (18.2)	65 (24.0)	75 (97.84)

DRAWBAR PERFORMANCE

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 7th (1HL) Gear											
66.12 (49.31)	4833 (21.50)	5.13 (8.26)	2000	7.43	5.333 (20.189)	0.565 (0.344)	12.40 (2.442)	192 (88.9)	67 (19.4)	73 (22.5)	29.15 (98.44)
75% of Pull at Maximum Power—Ten Hours 7th (1HL) Gear											
54.27 (49.47)	3697 (16.45)	5.50 (8.86)	2088	4.88	4.380 (16.578)	0.565 (0.344)	12.39 (2.441)	190 (87.6)	66 (18.7)	73 (22.8)	28.66 (96.78)
50% of Pull at Maximum Power—Two Hours 7th (1HL) Gear											
37.50 (27.96)	2465 (10.96)	5.70 (9.18)	2130	3.34	3.477 (13.162)	0.649 (0.395)	10.79 (2.125)	188 (86.7)	72 (22.2)	76 (24.4)	29.09 (98.23)
50% of Pull at Reduced Engine Speed—Two Hours 9th (2HL) Gear											
37.50 (27.97)	2465 (10.96)	5.71 (9.18)	1450	3.23	2.613 (9.892)	0.488 (0.297)	14.35 (2.827)	187 (85.8)	73 (22.5)	76 (24.4)	29.03 (98.01)
MAXIMUM POWER IN SELECTED GEARS											
52.99 (39.52)	8663 (38.53)	2.29 (3.69)	2075	14.91	4th (2LH) Gear			188 (86.7)	56 (13.3)	64 (17.8)	28.73 (97.02)
63.35 (47.24)	7512 (33.42)	3.16 (5.09)	1999	13.15	5th (3LL) Gear			190 (87.8)	56 (13.3)	67 (19.4)	29.17 (98.50)
65.12 (48.56)	5630 (25.04)	4.34 (6.98)	2000	8.95	6th (3LH) Gear			191 (88.3)	57 (13.9)	68 (20.0)	29.17 (98.50)
67.44 (50.29)	4929 (21.92)	5.13 (8.26)	2000	7.40	7th (1HL) Gear			191 (88.3)	64 (17.8)	71 (21.7)	29.17 (98.50)
67.55 (50.37)	3700 (16.46)	6.85 (11.02)	2000	5.58	8th (1HH) Gear			191 (88.3)	59 (15.0)	69 (20.6)	29.17 (98.50)
67.85 (50.60)	3290 (14.63)	7.73 (12.45)	2000	4.89	9th (2HL) Gear			191 (88.3)	61 (16.1)	70 (21.1)	29.17 (98.50)

Department of Agricultural Engineering

Dates of Test: May 12-28, 1984

Manufacturer: MASSEY FERGUSON MANUFACTURING CO., P.O. Box 62 Banner Lane, Coventry CV4 9GF Warwickshire, England

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 46.0 (rating taken from oil company's inspection data) Specific gravity converted to 60°/60° (15°/15°) 0.8410 Fuel weight 7.003 lbs/gal (0.839 kg/l) Oil SAE 15W-40 API service classification SE, SF, CC, CD To motor 2.290 gal (8.669 l) Drained from motor 1.858 gal (7.032 l) Transmission and final drive lubricant Massey Ferguson Permatran III fluid Total time engine was operated 43.0 hours.

ENGINE: Make Perkins Diesel Type four cylinder vertical Serial No. ND31120U529059K Crankshaft lengthwise Rated rpm 2000 Bore and stroke 4.5" × 5" (114.4 mm × 127 mm) Compression ratio 17.5 to 1 Displacement 318 cu in (5212 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter two paper elements Muffler vertical Cooling medium temperature control one thermostat.

CHASSIS: Type standard Serial No. 703082 Tread width rear 60" (1524 mm) to 96" (2438 mm) front 57" (1448 mm) to 77" (1956 mm) Wheel base 96" (2438 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 32.0" (813 mm) Vertical distance above roadway 33.0" (838 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 with partial (2) range operator controlled powershift Advertised speeds mph (km/h) first 1.4 (2.3) second 1.8 (2.9) third 2.1 (3.3) fourth 2.7 (4.3) fifth 3.7 (6.0) sixth 4.9 (7.9) seventh 5.7 (9.2) eighth 7.5 (12.0) ninth 8.4 (13.5) tenth 10.9 (17.6) eleventh 15.4 (24.7) twelfth 20.1 (32.3) reverse 1.9 (3.1), 2.5 (4.0) 7.8 (12.5) 10.1 (16.3) Clutch single dry disc operated by foot pedal Brakes multiple wet disc hydraulically operated by two foot pedals which can be locked together and mechanically by hand Steering hydrostatic Turning radius (on concrete surface with brake applied) right 160" (4.07 m) left 163" (4.14 m) (on concrete surface without brake) right 192" (4.87 m) left 197" (5.00 m) Turning space diameter (on concrete surface with brake applied) right 328" (8.34 m) left 334" (8.48 m) (on concrete surface without brake) right 392" (9.94 m) left 402" (10.20 m) Power take-off 540 rpm at 1686 engine rpm and 1000 at 1692 engine rpm.

LUGGING ABILITY IN 7th (1HL) GEAR

Crankshaft Speed rpm	2000	1798	1605	1395	1195	998
Pull—lbs (kN)	4929 (21.92)	5344 (23.95)	5640 (25.28)	5810 (26.04)	5952 (26.68)	5914 (26.51)
Increase in Pull %	0	8	14	18	21	20
Power—Hp (kW)	67.44 (50.29)	65.14 (48.58)	60.97 (45.47)	54.41 (40.57)	47.56 (35.47)	39.48 (29.44)
Speed—Mph (km/h)	5.13 (8.26)	4.57 (7.36)	4.05 (6.52)	3.51 (5.65)	3.00 (4.82)	2.50 (4.03)
Slip %	7.40	8.31	8.83	9.21	9.46	9.46

TRACTOR SOUND LEVEL WITHOUT CAB dB(A)

Maximum Available Power—Two Hours	99.5
75% of Pull at Maximum Power—Ten Hours	97.5
50% of Pull at Maximum Power—Two Hours	96.5
50% of Pull at Reduced Engine Speed—Two Hours	95.5
Bystander in 11th (3HL) gear	89.0

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires		
—No., size, ply & psi (kPa)	Two 18.4-34; 6; 16 (110)	Two 18.4-34; 6; 16 (110)
Ballast		
—Liquid (each)	1020 lb (463 kg)	None
—Cast Iron (each)	410 lb (186 kg)	None
Front Tires		
—No., size, ply & psi (kPa)	Two 9.5L-15; 6; 32 (220)	Two 9.5L-15; 6; 32 (220)
Ballast		
—Liquid (each)	None	None
—Cast Iron (each)	38 lb (17 kg)	None
Height of Drawbar	22.5 in (570 mm)	22.5 in (570 mm)
Static Weight with Operator—Rear	8260 lb (3747 kg)	5400 lb (2449 kg)
—Front	2690 lb (1220 kg)	2615 lb (1186 kg)
—Total	10950 lb (4967 kg)	8015 lb (3635 kg)

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 163°F (72.5°C). Six 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. **1524**, July 3, 1984.

LOUIS I. LEVITICUS
Engineer-in-Charge

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



Massey Ferguson 298 Multipower Diesel