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Test 1344: Massey-Ferguson 4880 Diesel 12 and 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1344 — MASSEY FERGUSON 4880 DIESEL 18 SPEED—ALSO 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—1108 rpm)								
272.81 (203.43)	2600	17.349 (65.674)	0.449 (0.273)	15.72 (3.098)	184 (84.3)	54 (12.2)	75 (23.9)	28.927 (97.681)
Standard Power Take-Off Speed (1000 rpm)—One Hour								
267.38 (199.39)	2348	15.916 (60.249)	0.420 (0.256)	16.80 (3.309)	183 (83.8)	54 (12.1)	75 (23.8)	28.900 (97.591)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
242.56 (180.88)	2721	16.767 (63.471)	0.488 (0.297)	14.47 (2.850)	182 (83.6)	54 (12.2)	75 (23.9)	..... .....
0.00 (0.00)	2799	6.805 (25.761)	..... .....	..... .....	176 (80.0)	54 (11.9)	74 (23.6)	..... .....
123.83 (92.34)	2774	12.141 (45.959)	0.692 (0.421)	10.20 (2.009)	180 (81.9)	54 (12.2)	75 (23.9)	..... .....
273.97 (204.30)	2600	17.345 (65.658)	0.447 (0.272)	15.80 (3.112)	184 (84.4)	54 (12.2)	75 (23.9)	..... .....
62.18 (46.36)	2787	9.528 (36.069)	1.082 (0.658)	6.53 (1.285)	177 (80.6)	53 (11.7)	75 (23.9)	..... .....
184.56 (137.63)	2758	14.499 (54.884)	0.555 (0.337)	12.73 (2.508)	180 (82.2)	54 (11.9)	75 (23.9)	..... .....
Av 147.85 Av (110.25)	2740	12.848 (48.634)	0.614 (0.373)	11.51 (2.267)	180 (82.1)	54 (12.0)	75 (23.8)	28.875 (97.507)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Temp. °F (°C) Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 8th (2Lo Int) Gear											
235.40 (175.54)	15271 (67.93)	5.78 (9.30)	2599	4.40	17.435 (65.998)	0.523 (0.318)	13.50 (2.660)	185 (85.0)	61 (16.1)	85 (29.4)	28.788 (97.211)
75% of Pull at Maximum Power—Ten Hours 8th (2Lo Int) Gear											
194.65 (145.15)	11822 (52.59)	6.17 (9.94)	2742	3.16	16.249 (61.509)	0.590 (0.359)	11.98 (2.360)	175 (79.3)	57 (12.4)	74 (23.2)	28.799 (97.250)
50% of Pull at Maximum Power—Two Hours 8th (2Lo Int) Gear											
131.99 (98.42)	7827 (34.81)	6.32 (10.18)	2785	2.36	13.771 (52.128)	0.737 (0.448)	9.58 (1.888)	174 (78.9)	42 (5.3)	54 (12.2)	28.995 (97.912)
50% of Pull at Reduced Engine Speed—Two Hours 13th (3Lo Lo) Gear											
132.73 (98.97)	7869 (35.00)	6.33 (10.18)	1507	2.28	8.815 (33.368)	0.469 (0.285)	15.06 (2.966)	174 (78.9)	43 (6.1)	57 (13.9)	28.985 (97.878)
MAXIMUM POWER IN SELECTED GEARS											
204.40 (152.42)	29272 (130.21)	2.62 (4.21)	2679	14.80	2nd (1Lo Int) Gear			175 (79.4)	37 (2.8)	46 (7.8)	28.960 (97.794)
219.66 (163.80)	28494 (126.75)	2.89 (4.65)	2600	12.49	3rd (1Hi Lo) Gear			175 (79.2)	39 (3.9)	49 (9.4)	28.980 (97.861)
219.92 (163.99)	27685 (123.15)	2.98 (4.79)	2599	11.15	4th (1Lo Hi) Gear			174 (78.9)	38 (3.3)	47 (8.3)	28.970 (97.827)
232.14 (173.10)	24025 (106.87)	3.62 (5.83)	2599	8.57	5th (1Hi Int) Gear			180 (81.9)	57 (13.9)	70 (21.1)	28.860 (97.456)
236.86 (176.63)	21361 (95.02)	4.16 (6.69)	2600	6.82	6th (1Hi Hi) Gear			179 (81.4)	58 (14.4)	73 (22.8)	28.860 (97.456)
236.52 (176.37)	18614 (82.80)	4.76 (7.67)	2602	5.53	7th (2Lo Lo) Gear			178 (81.1)	57 (13.9)	68 (20.0)	28.860 (97.456)
242.21 (180.61)	15733 (69.99)	5.77 (9.29)	2600	4.44	8th (2Lo Int) Gear			180 (82.2)	58 (14.4)	72 (22.2)	28.860 (97.456)
238.54 (177.88)	13884 (61.76)	6.44 (10.37)	2600	3.81	9th (2Hi Lo) Gear			183 (83.9)	60 (15.6)	80 (26.7)	28.840 (97.388)
244.57 (182.37)	14022 (62.37)	6.54 (10.53)	2598	3.81	10th (2Lo Hi) Gear			183 (83.6)	60 (15.6)	81 (27.2)	28.840 (97.388)
240.55 (179.38)	11571 (51.47)	7.80 (12.55)	2601	3.01	11th (2Hi Int) Gear			183 (83.6)	60 (15.6)	82 (27.8)	28.840 (97.388)
237.14 (176.84)	10098 (44.92)	8.81 (14.17)	2601	2.60	12th (2Hi Hi) Gear			183 (83.9)	60 (15.6)	83 (28.3)	28.840 (97.388)

Department of Agricultural Engineering

Dates of Test: April 19—May 9, 1980

Manufacturer: MASSEY FERGUSON, INC.,
1901 Bell Ave., Des Moines, Iowa 50315

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°)** 0.8482 **Fuel weight** 7.062 lbs/gal
(0.846 kg/l) **Oil SAE 30 API service classifica-
tion SB/SE-CA/CD To motor** 6.848 gal (25.920 l)
Drained from motor 6.373 gal (24.122 l) **Trans-
mission, hydraulic, and final drive lubricant** MF
Permatran **Total time engine was operated** 46
hours.

ENGINE Make Cummins **Dsl Type** eight cyl-
inder vee with turbocharger **Serial No.** 10889862
Crankshaft lengthwise **Rated rpm** 2600 **Bore
and stroke** 5.5" × 4.75" (139.7 mm × 120.7 mm)
Compression ratio 15.5 to 1 **Displacement** 903 cu
in (14800 ml) **Starting system** 12 volt **Lubrication
pressure** **Air cleaner** two paper elements with aspi-
rator **Oil filter** one full flow cartridge and one
bypass cartridge **Oil cooler** engine coolant heat
exchanger for crankcase oil, radiator for hydraulic
and transmission oil **Fuel filter** two paper car-
tridges **Muffler** vertical **Cooling medium tem-
perature control** two thermostats.

CHASSIS: Type four wheel drive with duals
Serial No. 9D 002148 **Tread width** rear 70" (1778
mm) to 130.5" (3314 mm) front 70" (1778 mm) to
130.5" (3314 mm) **Wheel base** 137" (3480 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 84.5"
(2146 mm) Vertical distance above roadway 49.1"
(1247 mm) Horizontal distance from center of rear
wheel tread 0.3" (7 mm) to the right **Hydraulic
control system** direct engine drive **Transmission**
Selective gear fixed ratio with partial (3) range
operator controlled powershift **Advertised
speeds mph (km/h)** first 2.4 (3.8) second 2.9 (4.6)
third 3.2 (5.1) fourth 3.2 (5.2) fifth 3.8 (6.1) sixth
4.3 (6.9) seventh 4.8 (7.8) eighth 5.8 (9.3) ninth 6.4
(10.3) tenth 6.5 (10.5) eleventh 7.7 (12.4) twelfth
8.7 (14.0) thirteenth 10.7 (17.2) fourteenth 12.8
(20.6) fifteenth 14.2 (22.9) sixteenth 14.4 (23.2)
seventeenth 17.0 (27.4) eighteenth 19.2 (30.9) re-
verse 3.2 (5.2), 3.9 (6.3), 4.3 (7.0), 4.4 (7.1), 5.2
(8.3), 5.8 (9.4) **Clutch** multiple wet disc operated
by foot pedal **Brakes** caliper disc hydraulically
operated by foot pedal or mechanically by hand
lever **Steering** hydrostatic and articulated
Turning radius (on concrete surface without
brake) right 246" (6.25 m) left 246" (6.25 m)
Turning space diameter (on concrete surface
without brake) right 516" (13.10 m) left 516" (13.10
m) **Power take-off** 1000 rpm at 2348 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or
adjustments.

LUGGING ABILITY IN 8th (2Lo Int) GEAR

Crankshaft Speed rpm	2600	2351	2080	1818	1561	1304
Pull—lbs (kN)	15733 (69.99)	16908 (75.21)	18168 (80.81)	19475 (86.63)	18951 (84.30)	18337 (81.57)
Increase in Pull %	0	7	15	24	20	17
Power—Hp (kW)	242.21 (180.61)	234.32 (174.73)	221.59 (165.24)	206.56 (154.03)	172.75 (128.82)	139.93 (104.35)
Speed—Mph (km/h)	5.77 (9.29)	5.20 (8.36)	4.57 (7.36)	3.98 (6.40)	3.42 (5.50)	2.86 (4.61)
Slip %	4.44	4.91	5.53	5.99	5.84	5.68

TRACTOR SOUND LEVEL WITH CAB dB(A)

Maximum Available Power—Two Hours	81.5
75% of Pull at Maximum Power—Ten Hours	83.0
50% of Pull at Maximum Power—Two Hours	83.5
50% of Pull at Reduced Engine Speed—Two Hours	80.5
Bystander in 15th (3Hi Lo) gear	91.5

TIRES, BALLAST AND WEIGHT

Rear Tires	—No., size, ply & psi (kPa)	With Ballast	Without Ballast
		Four 23.1-34; 8; inner	Four 23.1-34; 8; inner
		16 (110) outer 12 (85)	16 (110) outer 12 (85)
Ballast	—Liquid (each inner)	680 lb (308 kg)	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi (kPa)	Four 23.1-34; 8; inner	Four 23.1-34; 8; inner
		16 (110) outer 12 (85)	16 (110) outer 12 (85)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Height of drawbar		21.5 in (545 mm)	21.5 in (545 mm)
Static Weight with Operator—Rear		13600 lb (6169 kg)	12240 lb (5552 kg)
Front		18850 lb (8550 kg)	18850 lb (8550 kg)
Total		32450 lb (14719 kg)	31090 lb (14102 kg)

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 140°F (59.8°C). Eleven 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 **1344**.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



Massey Ferguson 4880 Diesel