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Test 1343: Massey-Ferguson 4840 Diesel 12 and 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1343 — MASSEY FERGUSON 4840 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)								
210.67 (157.10)	2600	14.541 (55.044)	0.487 (0.297)	14.49 (2.854)	184 (84.3)	52 (11.3)	75 (23.8)	28.830 (97.355)

Standard Power Take-Off Speed (1000 rpm)—One Hour								
210.61 (157.05)	2348	13.526 (51.201)	0.454 (0.276)	15.57 (3.067)	185 (84.9)	52 (11.1)	75 (24.0)	28.815 (97.304)

VARYING POWER AND FUEL CONSUMPTION—Two Hours

185.51 (138.34)	2695	13.738 (52.005)	0.523 (0.318)	13.50 (2.660)	180 (82.2)	52 (11.4)	76 (24.2)	.....
0.00 (0.00)	2760	5.790 (21.918)	.....	.....	171 (77.2)	52 (11.1)	75 (23.9)	.....
94.51 (70.48)	2741	9.626 (36.439)	0.719 (0.438)	9.82 (1.934)	174 (79.2)	52 (11.1)	75 (23.9)	.....
210.69 (157.11)	2600	14.554 (55.093)	0.488 (0.297)	14.48 (2.852)	184 (84.2)	52 (11.1)	75 (23.9)	.....
47.46 (35.39)	2752	7.723 (29.235)	1.149 (0.699)	6.15 (1.211)	172 (77.8)	52 (11.1)	75 (23.9)	.....
140.58 (104.83)	2723	11.593 (43.884)	0.582 (0.354)	12.13 (2.389)	176 (80.0)	52 (11.1)	75 (23.9)	.....
Av 113.13 (84.36)	2712	10.504 (39.762)	0.656 (0.399)	10.77 (2.122)	176 (80.1)	52 (11.2)	75 (23.9)	28.800 (97.253)

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 (2Lo Lo) Gear											
179.65 (133.96)	13921 (61.92)	4.84 (7.79)	2598	4.01	14.479 (54.809)	0.569 (0.346)	12.41 (2.444)	179 (81.7)	56 (13.3)	71 (21.4)	28.915 (97.642)

75% of Pull at Maximum Power—Ten Hours 7th (2Lo Lo) Gear											
147.47 (109.97)	10823 (48.14)	5.11 (8.22)	2713	2.95	13.109 (49.623)	0.628 (0.382)	11.25 (2.216)	174 (79.1)	56 (13.6)	73 (22.8)	28.954 (97.773)

50% of Pull at Maximum Power—Two Hours 7th (2Lo Lo) Gear											
100.63 (75.04)	7234 (32.18)	5.22 (8.40)	2743	2.03	10.797 (40.872)	0.758 (0.461)	9.32 (1.836)	172 (77.5)	57 (13.9)	72 (22.2)	28.995 (97.912)

50% of Pull at Reduced Engine Speed—Two Hours 11th (2Hi Int) Gear											
101.41 (75.62)	7266 (32.32)	5.23 (8.42)	1726	1.91	7.346 (27.806)	0.512 (0.311)	13.81 (2.720)	172 (77.5)	58 (14.2)	78 (25.6)	29.000 (97.929)

MAXIMUM POWER IN SELECTED GEARS

162.45 (121.14)	28191 (125.40)	2.16 (3.48)	2651	14.86	1st (1Lo Lo) Gear			173 (78.1)	55 (12.8)	65 (18.3)	28.980 (97.861)
176.06 (131.29)	24476 (108.88)	2.70 (4.34)	2600	9.64	2nd (1Lo Int) Gear			177 (80.6)	55 (12.8)	67 (19.4)	28.950 (97.760)
181.65 (135.46)	22271 (99.06)	3.06 (4.92)	2600	7.56	3rd (1Hi Lo) Gear			176 (80.0)	55 (12.8)	67 (19.4)	28.960 (97.794)
183.46 (136.81)	22119 (98.39)	3.11 (5.01)	2600	7.33	4th (1Lo Hi) Gear			176 (80.0)	55 (12.8)	66 (18.9)	28.960 (97.794)
183.06 (136.50)	18333 (81.55)	3.74 (6.03)	2596	5.53	5th (1Hi Int) Gear			176 (80.0)	55 (12.8)	66 (18.9)	28.950 (97.760)
185.01 (137.96)	16318 (72.58)	4.25 (6.84)	2599	4.68	6th (1Hi Hi) Gear			177 (80.3)	54 (12.2)	65 (18.3)	28.940 (97.726)
186.36 (138.97)	14440 (64.23)	4.84 (7.79)	2599	4.05	7th (2Lo Lo) Gear			180 (82.2)	57 (13.9)	72 (22.2)	28.910 (97.625)
183.76 (137.03)	11779 (52.40)	5.85 (9.41)	2598	3.17	8th (2Lo Int) Gear			178 (81.1)	55 (12.8)	68 (20.0)	28.950 (97.760)
183.94 (137.16)	10596 (47.13)	6.51 (10.48)	2598	2.85	9th (2Hi Lo) Gear			177 (80.3)	55 (12.8)	68 (20.0)	28.940 (97.726)
181.65 (135.46)	10288 (45.76)	6.62 (10.66)	2601	2.77	10th (2Lo Hi) Gear			178 (81.1)	55 (12.8)	69 (20.6)	28.940 (97.726)
179.09 (133.55)	8548 (38.02)	7.86 (12.64)	2600	2.28	11th (2Hi Int) Gear			178 (81.1)	55 (12.8)	69 (20.6)	28.930 (97.692)
180.43 (134.54)	7633 (33.95)	8.86 (14.27)	2599	2.03	12th (2Hi Hi) Gear			178 (80.8)	55 (12.8)	69 (20.6)	28.930 (97.692)

Department of Agricultural Engineering

Dates of Test: April 16—May 6, 1980

Manufacturer: MASSEY FERGUSON, INC.,
1901 Bell Avenue, 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 7.261 gal (27.481 l)
Drained from motor 6.374 gal (24.126 l) **Trans-**
mission, hydraulic, and final drive lubricant MF
Permatran **Total time engine was operated** 43.5
hours.

ENGINE Make Cummins **Dsl Type** eight cyl-
inder vee **Serial No.** 10891424 **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 aspirator **Oil**
filter one full flow cartridge and one bypass car-
tridge **Oil cooler** engine coolant heat exchanger
for crankcase, radiator for hydraulic and trans-
mission oil **Fuel filter** two paper cartridges **Muf-**
fler vertical **Cooling medium temperature con-**
trol two thermostats

CHASSIS: Type four wheel drive with duals
Serial No. 9D 002144 **Tread width** rear 70.0"
(1778 mm) to 130.5" (3314 mm) front 70.0" (1778
mm) to 130.5" (3314 mm) **Wheel base** 137" (3480
mm) **Center of gravity** (without operator or bal-
last, with minimum tread, with fuel tank filled and
tractor serviced for operation) Horizontal distance
forward from center-line of rear wheels 84.1"
(2136 mm) Vertical distance above roadway 49.1"
(1247 mm) Horizontal distance from center of rear
wheel tread 0.3" (8 mm) to the right **Hydraulic**
control system direct engine drive **Transmission**
Selective gear fixed ratio with partial (3) range
operator controlled power shift **Advised**
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.

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
138°F (59.1°C). Twelve gears were chosen between
15% slip and 10 mph (16.1 km/h).

LUGGING ABILITY IN 7th (2Lo Lo) GEAR

Crankshaft Speed rpm	2599	2351	2082	1814	1562	1294	1028
Pull—lbs (kN)	14440 (64.23)	15763 (70.12)	17949 (79.84)	19503 (86.75)	20411 (90.79)	21662 (96.36)	21614 (96.14)
Increase in Pull %	0	9	24	35	41	50	50
Power—Hp (kW)	186.36 (138.97)	183.28 (136.67)	183.27 (136.67)	172.28 (128.47)	154.59 (115.28)	134.82 (100.53)	106.88 (79.70)
Speed—Mph (km/h)	4.84 (7.79)	4.36 (7.02)	3.83 (6.16)	3.31 (5.33)	2.84 (4.57)	2.33 (3.76)	1.85 (2.98)
Slip %	4.05	4.44	5.22	5.84	6.44	7.04	7.04

TRACTOR SOUND LEVEL WITH CAB dB(A)

Maximum Available Power—Two Hours	84.5
75% of Pull at Maximum Power—Ten Hours	86.0
50% of Pull at Maximum Power—Two Hours	86.5
50% of Pull at Reduced Engine Speed—Two Hours	80.0
Bystander in 15th (3Hi Lo) gear	95.5

TIRES, BALLAST AND WEIGHT

Rear Tires—No., size, ply & psi (kPa)

Ballast—Liquid (each)
—Cast Iron (each)

Front Tires—No., size, ply & psi (kPa)

Ballast—Liquid (each)
—Cast Iron (each)

Height of drawbar

Static Weight with Operator—Rear
Front
Total

Tested Without Ballast

Four 23.1-34; 8; inner 16 (110)
outer 12 (85)

None
None

Four 23.1-34; 8; inner 16 (110)
outer 12 (85)

None
None

21.5 in (545 mm)

12180 lb (5525 kg)
18740 lb (8500 kg)
30920 lb (14025 kg)

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1343**.

LOUIS I. LEVITICUS

Engineer-in Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



Massey Ferguson 4840 Diesel

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