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January 1999

## Nebraska Summary 319: Massey Ferguson 8240 Diesel 18-Speed

Nebraska Tractor Test Lab

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# SUMMARY OF OECD TESTS 1847 & 1848-NEBRASKA SUMMARY 319

## MASSEY FERGUSON 8240 DIESEL

### 18 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed (PTO speed 1050 rpm)</b>					
146.2 (109.0)	2196	9.26 (35.07)	0.450 (0.274)	15.79 (3.11)	
<b>Standard Power Take-off Speed (999 rpm)</b>					
152.6 (113.7)	2090	9.20 (34.81)	0.428 (0.260)	16.59 (3.27)	
<b>Maximum Power (2 Hours)</b>					
155.2 (115.7)	2004	9.06 (34.28)	0.415 (0.252)	17.13 (3.37)	

#### VARYING POWER AND FUEL CONSUMPTION

146.2 (109.0)	2196	9.26 (35.07)	0.450 (0.274)	15.79 (3.11)	Air temperature
125.8 (93.8)	2249	8.44 (31.96)	0.477 (0.290)	14.90 (2.93)	72°F (22°C)
95.9 (71.5)	2285	7.15 (27.07)	0.529 (0.322)	13.41 (2.64)	Relative humidity
65.0 (48.5)	2317	5.68 (21.51)	0.621 (0.378)	11.44 (2.25)	60%
32.3 (24.1)	2342	4.27 (16.15)	0.938 (0.571)	7.57 (1.49)	Barometer
--	2360	2.80 (10.59)	--	--	30.4" Hg (102.9 kPa)

Maximum Torque - 493.6 lb.-ft. (669.2 Nm) at 1400 rpm

Maximum Torque Rise - 40.4%

Torque rise at 1780 engine rpm - 27%

#### DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)

#### FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l) med	Temp. °F (°C) cool- ing bulb	Air dry (kPa)	Barom. inch Hg
<b>Maximum Power 10th Gear</b>									
141.1 (105.2)	9730 (43.3)	5.44 (8.75)	1979	5	0.451 (0.275)	15.74 (3.10)	189 (87)	72 (22)	29.8 (100.9)
<b>75% of Pull at Maximum Power 10th Gear</b>									
107.3 (80.0)	6345 (28.2)	6.34 (10.20)	2261	3	0.534 (0.325)	13.30 (2.62)	187 (86)	72 (22)	29.8 (100.9)
<b>50% of Pull at Maximum Power 10th Gear</b>									
73.1 (54.5)	4205 (18.7)	6.52 (10.49)	2300	2	0.640 (0.389)	11.09 (2.18)	181 (83)	72 (22)	29.8 (100.9)
<b>75% of Pull at Reduced Engine Speed 11th Gear</b>									
107.7 (80.3)	6360 (28.3)	6.35 (10.22)	2001	3	0.487 (0.296)	14.58 (2.87)	183 (84)	72 (22)	29.8 (100.9)
<b>50% of Pull at Reduced Engine Speed 11th Gear</b>									
69.3 (51.7)	3985 (17.7)	6.52 (10.50)	2056	3	0.573 (0.349)	12.39 (2.44)	181 (83)	72 (22)	29.8 (100.9)

**Location of Test:** Groupement d'Antony, Parc de Touvoie, BP 44 Antony, France 92163

**Dates of Test:** February - June, 1999

**Manufacturer:** AGCO S.A. Z.A.-No.2 BP 60307, Avenue Blaise Pascal, 60026 Beauvais, France

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.853  
**Fuel weight** 7.10 lbs/gal (0.851 kg/l) **Oil SAE** 10W40 **API service classification** CD/CE  
**Transmission and hydraulic lubricant** BP Terrac Extra 10W/30 **Front axle lubricant** API GL5 - SAE 85W140

**ENGINE:** Make Sisu Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** ZU644841B **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.251" x 4.724" (108.0 mm x 120.0 mm) **Compression ratio** 16.5 to 1 **Displacement** 402 cu in (6596 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

**CHASSIS:** **Type** 2WD & front wheel assist **Serial No.** G 085 10 **Tread width** rear 63.4" (1610 mm) to 74.8" (1900 mm) front: 2WD - 64.8" (1645 mm) to 88.6" (2250 mm), FWA - 63.4" (1630 mm) to 74.8" (2030 mm) **Wheelbase** 117.5" (2985 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph (km/h)** first 1.50 (2.41) second 1.94 (3.12) third 2.50 (4.02) fourth 2.85 (4.58) fifth 3.23 (5.19) sixth 3.68 (5.91) seventh 4.17 (6.70) eighth 4.75 (7.63) ninth 5.39 (8.66) tenth 6.13 (9.85) eleventh 6.94 (11.16) twelfth 7.91 (12.72) thirteenth 8.96 (14.41) fourteenth 10.21 (16.42) fifteenth 11.57 (18.60) sixteenth 14.94 (24.02) seventeenth 19.27 (30.99) eighteenth 24.89 (40.03) reverse 1.50 (2.41), 2.50 (4.02), 2.85 (4.58), 4.17 (6.70), 4.75 (7.63), 6.94 (11.16), 7.91 (12.72), 11.57 (18.60), 19.27 (30.99) **Clutch** multiple wet disc operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1993 engine rpm or 1000 rpm at 2091 engine rpm **Unladen tractor mass** 2WD - 15390 lb (6980 kg), FWA - 16305 lb (7395 kg)

## DRAWBAR PERFORMANCE

### (Unballasted - Front Drive Engaged) MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
83.4 (62.2)	13945 (62.0)	2.24 (3.61)	2276	15	3rd Gear 0.646 (0.393)	11.00 (2.17)	185 (85)	72 (22)	29.4 (100.9)
100.3 (74.8)	13885 (61.8)	2.71 (4.36)	2262	11	4th Gear 0.569 (0.346)	12.49 (2.46)	183 (84)	72 (22)	29.4 (100.9)
113.0 (84.3)	13755 (61.2)	3.08 (4.96)	2239	9	5th Gear 0.542 (0.330)	13.10 (2.58)	185 (85)	72 (22)	29.4 (100.9)
126.9 (94.6)	13725 (61.1)	3.47 (5.58)	2218	9	6th Gear 0.514 (0.312)	13.83 (2.72)	183 (84)	72 (22)	29.4 (100.9)
135.6 (101.1)	13120 (58.4)	3.88 (6.24)	2154	8	7th Gear 0.489 (0.298)	14.52 (2.86)	187 (86)	72 (22)	29.4 (100.9)
137.6 (102.6)	11630 (51.7)	4.44 (7.14)	2120	6	8th Gear 0.478 (0.291)	14.86 (2.93)	180 (82)	72 (22)	29.4 (100.9)
140.1 (104.5)	10970 (48.8)	4.79 (7.71)	2002	6	9th Gear 0.457 (0.278)	15.53 (3.06)	180 (82)	72 (22)	29.4 (100.9)
141.1 (105.2)	9735 (43.3)	5.44 (8.75)	1979	5	10th Gear 0.451 (0.275)	15.73 (3.10)	185 (85)	72 (22)	29.4 (100.9)
140.8 (105.0)	8340 (37.1)	6.33 (10.19)	2017	4	11th Gear 0.457 (0.278)	15.53 (3.06)	185 (85)	72 (22)	29.4 (100.9)
138.8 (103.5)	7215 (32.1)	7.21 (11.61)	2003	3	12th Gear 0.459 (0.279)	15.48 (3.05)	183 (84)	72 (22)	29.4 (100.9)
139.7 (104.2)	6475 (28.8)	8.09 (13.02)	2003	4	13th Gear 0.455 (0.277)	15.62 (3.08)	183 (84)	72 (22)	29.4 (100.9)
136.7 (101.9)	5585 (24.8)	9.18 (14.77)	1983	3	14th Gear 0.463 (0.282)	15.33 (3.02)	187 (86)	72 (22)	29.4 (100.9)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's 3 point lift claim of 19180 lbs (8700 kg) at link ends. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Reports No. **1847 & 1848**, Nebraska Summary 319, June 26, 2000.

Brent T. Sampson  
Test Engineer

L.L. Bashford  
M.F. Kocher  
G.J. Hoffman  
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	2WD dB(A)	Engaged dB(A)
At no load in 8th gear	74.0	74.0
Bystander	--	--

Tested Without Ballast		
TIRES AND WEIGHT	FWA	2WD
Rear tires - No., size, ply & psi(kPa)	Two 20.8R42; **,15(100)	Two 20.8R42; **,15(100)
Front tires - No., size, ply & psi(kPa)	Two 16.9R30; **,15(100)	Two 14L-16.1 ;10; 36(250)
Height of Drawbar	23.2 in (590 mm)	29.5 in (750 mm)
Static Weight with operator- Rear	10460 lb (4745 kg)	10650 lb (4830 kg)
- Front	6005 lb (2725 kg)	4905 lb (2225 kg)
- Total	16465 lb (7470 kg)	15555 lb (7055 kg)

## DRAWBAR PERFORMANCE

(Unballasted - 2WD)

### FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp.°F cool- ing med	Temp.°C Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power 10th Gear</b>									
138.3 (103.1)	9635 (42.9)	5.38 (8.66)	1994	6	0.460 (0.280)	15.43 (3.04)	187 (86)	63 (17)	28.8 (97.6)
<b>75% of Pull at Maximum Power 10th Gear</b>									
100.4 (74.9)	6000 (26.7)	6.28 (10.10)	2260	4	0.547 (0.333)	12.99 (2.56)	185 (85)	63 (17)	28.8 (97.6)
<b>50% of Pull at Maximum Power 10th Gear</b>									
69.0 (51.4)	3990 (17.8)	6.48 (10.43)	2306	3	0.635 (0.386)	11.18 (2.20)	181 (83)	63 (17)	28.8 (97.6)
<b>75% of Pull at Reduced Engine Speed 11th Gear</b>									
100.4 (74.9)	5965 (26.5)	6.31 (10.15)	2009	4	0.507 (0.308)	14.01 (2.76)	183 (84)	63 (17)	28.8 (97.6)
<b>50% of Pull at Reduced Engine Speed 11th Gear</b>									
69.3 (51.7)	3985 (17.7)	6.52 (10.50)	2056	3	0.573 (0.349)	12.39 (2.44)	181 (83)	63 (17)	28.8 (97.6)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
<b>2nd Gear</b>									
60.8 (45.3)	12915 (57.5)	1.76 (2.84)	2314	16	0.703 (0.428)	10.10 (1.99)	187 (86)	63 (17)	28.8 (97.6)
<b>3rd Gear</b>									
77.5 (57.8)	12680 (56.4)	2.29 (3.69)	2291	14	0.635 (0.386)	11.18 (2.20)	189 (87)	63 (17)	28.8 (97.6)
<b>4th Gear</b>									
89.2 (66.5)	12395 (55.1)	2.70 (4.34)	2276	11	0.588 (0.357)	12.08 (2.38)	187 (86)	63 (17)	28.8 (97.6)
<b>5th Gear</b>									
99.6 (74.3)	12080 (53.7)	3.09 (4.97)	2258	9	0.566 (0.344)	12.54 (2.47)	189 (87)	63 (17)	28.8 (97.6)
<b>6th Gear</b>									
112.8 (84.1)	12005 (53.4)	3.52 (5.67)	2255	9	0.528 (0.321)	13.45 (2.65)	185 (85)	63 (17)	28.8 (97.6)
<b>7th Gear</b>									
126.9 (94.6)	11980 (53.3)	3.97 (6.39)	2223	9	0.514 (0.313)	13.81 (2.72)	185 (85)	63 (17)	28.8 (97.6)
<b>8th Gear</b>									
135.2 (100.8)	11410 (50.8)	4.44 (7.15)	2168	8	0.496 (0.302)	14.31 (2.82)	187 (86)	63 (17)	28.8 (97.6)
<b>9th Gear</b>									
136.0 (101.4)	10740 (47.8)	4.75 (7.64)	2026	8	0.476 (0.290)	14.92 (2.94)	189 (87)	63 (17)	28.8 (97.6)
<b>10th Gear</b>									
138.3 (103.1)	9645 (42.9)	5.38 (8.66)	1994	6	0.460 (0.280)	15.43 (3.04)	189 (87)	63 (17)	28.8 (97.6)
<b>11th Gear</b>									
137.3 (102.4)	8380 (37.3)	6.14 (9.89)	1989	5	0.460 (0.280)	15.43 (3.04)	187 (86)	63 (17)	28.8 (97.6)
<b>12th Gear</b>									
137.7 (102.7)	7380 (32.8)	7.00 (11.26)	1977	4	0.457 (0.278)	15.53 (3.06)	185 (85)	63 (17)	28.8 (97.6)
<b>13th Gear</b>									
138.0 (102.9)	6450 (28.7)	8.02 (12.91)	1983	4	0.458 (0.279)	15.51 (3.06)	187 (86)	63 (17)	28.8 (97.6)
<b>14th Gear</b>									
137.6 (102.6)	5580 (24.8)	9.25 (14.88)	1999	3	0.462 (0.281)	15.38 (3.03)	185 (85)	63 (17)	28.8 (97.6)

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II, III

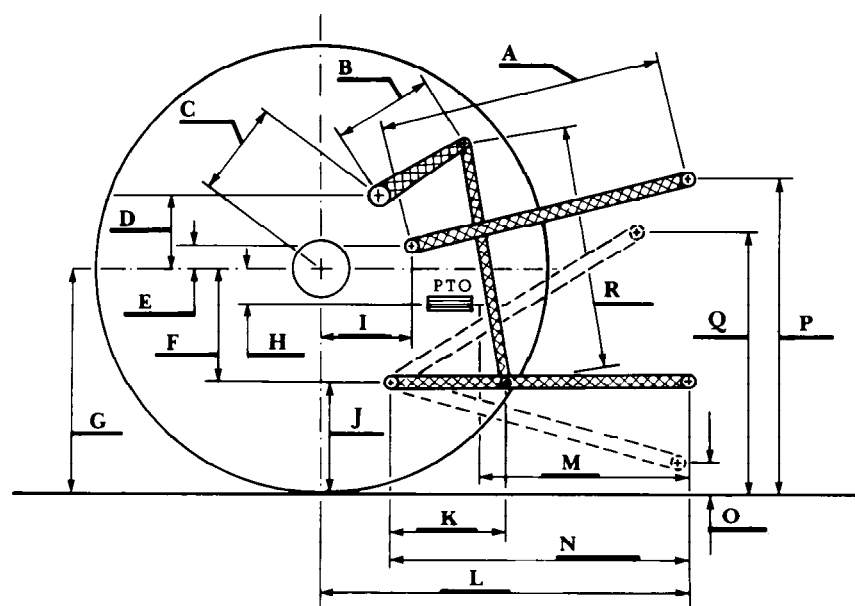
Quick Attach: None

Maximum Force Exerted

	Cat II	Cat III
Through Whole Range:	15150 lbs (67.4 kN)	13805 lbs (61.4 kN) (at the frame)
	14410 lbs (64.1 kN)	14635 lbs (65.1 kN) (at the hitch points)

- |  |                        |
|--|------------------------|
| i) Opening pressure of relief valve:         | NA                     |
| Sustained pressure of the open relief valve: | 2800 psi (193 bar)     |
| ii) Pump delivery rate at minimum pressure:  | 30.9 GPM (116.8 l/min) |
| iii) Pump delivery rate at maximum           |                        |
| hydraulic power:                             | 27.8 GPM (105.2 l/min) |
| Delivery pressure:                           | 2205 psi (152 bar)     |
| Power:                                       | 35.8 HP (26.7 kW)      |

HITCH DIMENSIONS AS TESTED NO LOAD



	Cat II test		Cat III test	
	inch	mm	inch	mm
A	31.9	810	31.3	795
B	15.0	380	15.0	380
C	19.4	492	19.4	492
D	17.6	447	17.6	447
E	11.0	280	11.0	280
F	13.0	330	13.0	330
G	35.6	905	35.6	905
H	3.0	77	3.0	77
I	17.6	448	17.6	448
J	22.6	575	22.6	575
K	20.9	530	20.9	530
L	48.5	1231	47.9	1217
M	23.6	599	23.0	585
N	38.6	981	38.1	967
O	8.1	207	8.0	204
P	46.7	1185	49.6	1260
Q	33.1	841	33.1	841
R	35.6	905	35.6	905