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January 1999

## Nebraska Summary 316: Massey Ferguson 243 Diesel 8-speed

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# SUMMARY OF OECD TEST 1849-NEBRASKA SUMMARY 316

## MASSEY FERGUSON 243 DIESEL

### 8 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 679 rpm)</b>					
47.6 (35.5)	2250	2.93 (11.10)	0.430 (0.261)	16.26 (3.20)	
<b>Standard Power Take-off Speed(540 rpm)</b>					
42.5 (31.7)	1789	2.39 (9.05)	0.393 (0.239)	17.77 (3.50)	

<b>VARYING POWER AND FUEL CONSUMPTION</b>					
47.6 (35.5)	2250	2.93 (11.10)	0.430 (0.261)	16.26 (3.20)	Air temperature
41.7 (31.1)	2319	2.63 (9.94)	0.440 (0.268)	15.87 (3.13)	77°F(25°C)
31.9 (23.8)	2358	2.17 (8.21)	0.476 (0.289)	14.68 (2.89)	Relative humidity
21.6 (16.1)	2388	1.75 (6.63)	0.567 (0.345)	12.32 (2.43)	40%
10.9 (8.1)	2412	1.21 (4.57)	0.777 (0.472)	8.99 (1.77)	Barometer
-- --	2424	0.77 (2.93)	-- --	-- --	30.1" Hg(102.0 kPa)

Maximum Torque - 133.0 lb.-ft.(180.3 Nm) at 1248 rpm  
Maximum Torque Rise - 19.6%  
Torque rise at 1789 engine rpm - 12%

#### 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)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power 5th(1H) Gear</b>									
37.7 (28.1)	2225 (9.9)	6.35 (10.21)	2244	6.5	0.537 (0.326)	13.02 (2.56)	174 (79)	77 (25)	29.8 (100.9)
<b>75% of Pull at Maximum Power 5th(1H) Gear</b>									
29.6 (22.1)	1655 (7.4)	6.72 (10.82)	2337	4.7	0.564 (0.343)	12.39 (2.44)	174 (79)	77 (25)	29.8 (100.8)
<b>50% of Pull at Maximum Power 5th(1H) Gear</b>									
20.7 (15.4)	1120 (5.0)	6.92 (11.14)	2371	3.4	0.665 (0.404)	10.51 (2.07)	174 (79)	77 (25)	29.8 (100.8)
<b>75% of Pull at Reduced Engine Speed 6th(2H) Gear</b>									
29.8 (22.2)	1660 (7.4)	6.73 (10.83)	1593	4.6	0.468 (0.285)	14.92 (2.94)	174 (79)	77 (25)	29.8 (100.9)
<b>50% of Pull at Reduced Engine Speed 6th(2H) Gear</b>									
20.8 (15.5)	1125 (5.0)	6.94 (11.17)	1620	3.3	0.502 (0.305)	13.91 (2.74)	172 (78)	77 (25)	29.8 (100.8)

**Location of Test:** Silsoe Research Institute Wrest  
Park, Silsoe, Bedford, England MK45 4HS

**Dates of Test:** June -July 1999

**Manufacturer:** AGCO LTD, P.O. Box 62, Banner  
lane, Coventry, West Midlands, England CV4  
9GF

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.839  
**Fuel weight** 6.98 lbs/gal (0.837 kg/l) **Oil SAE**  
15W30 **API service classification** CD  
**Transmission and hydraulic lubricant** SAE  
15W-30 **Front axle lubricant** SAE 15W30

**ENGINE:** Make Perkins Diesel **Type** three  
cylinder vertical **Serial No.** U327722D **Crankshaft**  
lengthwise **Rated engine speed** 2250 **Bore and**  
**stroke** 3.74" x 5.00" (95.0 mm x 127.0 mm)  
**Compression ratio** 17.3 to 1 **Displacement** 165  
cu in(2701 ml) **Starting system** 12volt **Lubrication**  
pressure **Air cleaner** two paper elements **Oil**  
**filter** one full flow cartridge **Fuel filter** one  
paper element **Muffler** vertical **Cooling medium**  
**temperature control** thermostat

**CHASSIS:** **Type** front wheel assist **Serial No.**  
G18382 **Tread width** rear 56.3" (1430 mm) to  
83.4" (2130 mm) front 44.0" (1118 mm) to 64.1"  
(1629 mm) **Wheelbase** 76.0" (1930 mm) **Hydraulic**  
**control system** direct engine drive **Transmission**  
selective gear fixed ratio **Nominal travel speeds**  
**mph (km/h)** first 1.60 (2.58) second 2.35 (3.78)  
third 4.31 (6.94) fourth 5.29 (8.51) fifth 6.56  
(10.56) sixth 9.62 (15.48) seventh 17.64 (28.38)  
eighth 21.64 (34.83) reverse 2.19 (3.52), 8.93  
(14.37) **Clutch** dual dry disc operated by foot  
pedal **Brakes** multiple wet disc operated by two  
foot pedals that can be locked together **Steering**  
hydrostatic **Power take-off** 540 rpm at 1789  
engine rpm **Unladen tractor mass** 5130 lb(2327  
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 Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
2nd(2L) Gear									
25.2 (18.8)	4310 (19.2)	2.19 (3.53)	2353	15.0	0.618 (0.376)	11.30 (2.23)	172 (78)	72 (22)	29.8 (100.8)
3rd(3L) Gear									
37.1 (27.7)	3425 (15.2)	4.06 (6.54)	2245	11.0	0.550 (0.335)	12.69 (2.50)	178 (81)	77 (25)	29.8 (100.9)
4th(4L) Gear									
37.4 (27.9)	2720 (12.1)	5.16 (8.30)	2252	8.0	0.540 (0.329)	12.92 (2.55)	180 (82)	77 (25)	29.8 (100.9)
5th(1H) Gear									
37.7 (28.1)	2225 (9.9)	6.35 (10.21)	2244	6.5	0.537 (0.326)	13.02 (2.56)	174 (79)	77 (25)	29.8 (100.9)
6th(2H) Gear									
37.3 (27.8)	1470 (6.5)	9.52 (15.32)	2245	4.3	0.544 (0.331)	12.84 (2.53)	176 (80)	77 (25)	29.8 (100.8)

## DRAWBAR PERFORMANCE

### (Unballasted - Front Drive Disengaged) 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)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power 5th(1H) Gear									
37.7 (28.1)	2435 (10.8)	5.81 (9.35)	2244	11.9	0.542 (0.330)	12.89 (2.54)	174 (79)	75 (24)	30.0 (101.7)
75% of Pull at Maximum Power 5th(1H) Gear									
30.3 (22.6)	1810 (8.1)	6.28 (10.11)	2338	8.4	0.553 (0.337)	12.62 (2.49)	176 (80)	73 (23)	30.0 (101.7)
50% of Pull at Maximum Power 5th(1H) Gear									
21.1 (15.7)	1205 (5.4)	6.57 (10.57)	2376	5.8	0.644 (0.392)	10.84 (2.14)	172 (78)	75 (24)	30.0 (101.7)
75% of Pull at Reduced Engine Speed 6th(2H) Gear									
30.4 (22.7)	1820 (8.1)	6.26 (10.08)	1593	8.6	0.468 (0.285)	14.92 (2.94)	178 (81)	77 (25)	30.0 (101.7)
50% of Pull at Reduced Engine Speed 6th(2H) Gear									
21.1 (15.7)	1205 (5.4)	6.56 (10.55)	1615	5.7	0.482 (0.293)	14.47 (2.85)	172 (78)	77 (25)	30.0 (101.7)
MAXIMUM POWER IN SELECTED GEARS									
4th(4L) Gear									
35.4 (26.4)	2855 (12.7)	4.65 (7.48)	2281	15.0	0.568 (0.345)	12.30 (2.42)	176 (80)	75 (24)	30.0 (101.7)
5th(1H) Gear									
37.7 (28.1)	2435 (10.8)	5.81 (9.35)	2244	11.9	0.542 (0.330)	12.89 (2.54)	174 (79)	75 (24)	30.0 (101.7)
6th(2H) Gear									
38.4 (28.6)	1600 (7.1)	8.99 (14.46)	2253	7.3	0.533 (0.324)	13.10 (2.58)	176 (80)	73 (23)	30.0 (101.7)

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
Maximum Sound level in 3rd (3L) gear	95.0	95.0
Bystander	--	--

**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 manufacture's claim of 2833 lbs (1285 kg) lift at 3 point hitch link ends. The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1849**, Nebraska Summary 316, September 18, 2000.

Brent T. Sampson  
Test Engineer

L.L. Bashford  
M.F. Kocher  
R.D. Grisso, Jr.  
Board of Tractor Test Engineers

## TIRES AND WEIGHT

**Rear tires** - No.,size, ply & psi(kPa)  
**Front tires** - No.,size, ply & psi(kPa)  
**Height of Drawbar**  
**Static Weight with operator**-Rear  
- Front  
- Total

## Tested Without Ballast

Two 14.9-28; 6;11(76)  
Two 320/70R20; \*\*,12(83)  
18.3 in (465 mm)  
3165 lb (1435 kg)  
2130 lb (967 kg)  
5295 lb (2402 kg)

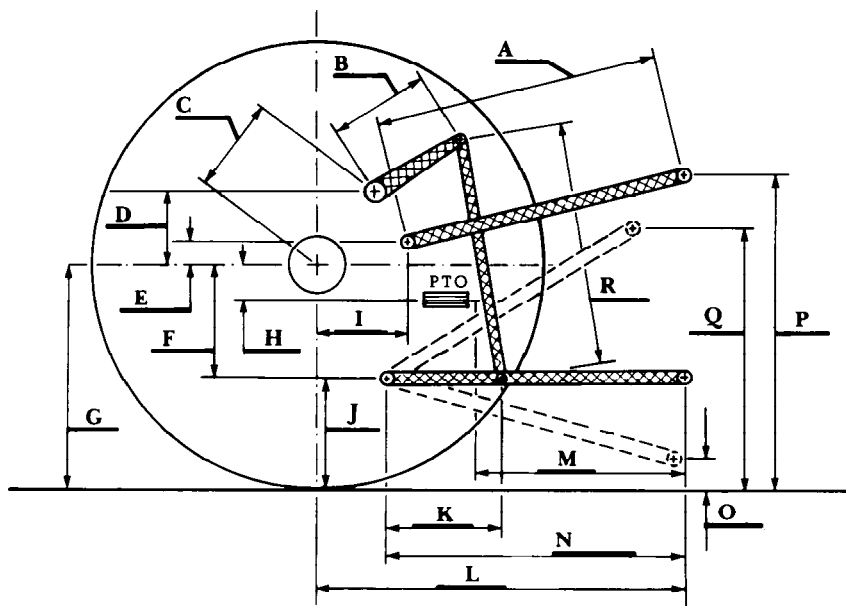
### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range: 1955 lbs (8.7 kN) (at the frame)  
2380 lbs (10.6 kN) (at the hitch points)

- i) Opening pressure of relief valve: NA  
Sustained pressure of the open relief valve: 2700 psi (186 bar)  
ii) Pump delivery rate at minimum pressure: 11.9 GPM (45.0 l/min)  
iii) Pump delivery rate at maximum hydraulic power: 11.2 GPM (42.5 l/min)  
Delivery pressure: 2495 psi (172 bar)  
Power: 16.3 HP (12.18 kW)



HITCH DIMENSIONS AS TESTED NO LOAD

	inch	mm
A	27.0	686
B	10.5	267
C	12.0	304
D	9.2	233
E	8.1	205
F	8.3	212
G	25.2	640
H	5.5	140
I	7.3	186
J	16.9	428
K	16.9	428
L	34.3	871
M	21.2	538
N	35.6	903
O	7.8	197
P	40.9	1038
Q	33.9	862
R	24.0	610