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January 1998

Nebraska Summary 277: Massey-Ferguson 4235 Diesel 18-Speed

Nebraska Tractor Test Lab

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SUMMARY OF OECD TEST 1799-NEBRASKA SUMMARY 277

MASSEY FERGUSON 4235 DIESEL

18 SPEED

POWER TAKE-OFF PERFORMANCE (540 RPM Shaft)

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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed (PTO speed 624 rpm)					
62.1 (46.3)	2200	4.34 (16.44)	0.489 (0.297)	14.29 (2.81)	
Maximum Power (2 hours)					
65.4 (48.8)	1951	4.13 (15.63)	0.441 (0.268)	15.84 (3.12)	
Standard Power Take-off Speed (540 rpm)					
65.2 (48.6)	1903	4.04 (15.28)	0.432 (0.263)	16.14 (3.18)	

VARYING POWER AND FUEL CONSUMPTION

62.1 (46.3)	2200	4.34 (16.44)	0.489 (0.297)	14.29 (2.81)	Air temperature
54.0 (40.3)	2263	4.09 (15.49)	0.529 (0.322)	13.20 (2.60)	75°F (24°C)
41.0 (30.6)	2287	3.58 (13.54)	0.609 (0.370)	11.47 (2.26)	Relative humidity
27.5 (20.5)	2301	3.00 (11.36)	0.763 (0.464)	9.16 (1.80)	35%
13.8 (10.3)	2314	2.22 (8.41)	1.127 (0.686)	6.20 (1.22)	Barometer
--	2328	1.56 (5.89)	--	--	30.1" Hg (102.0 kPa)

Maximum Torque -207.2 lb.-ft. (280.9 Nm) at 1401 rpm

Maximum Torque Rise -39.9%

Torque rise at 1800 engine rpm -23%

POWER TAKE-OFF PERFORMANCE (1000 RPM Shaft)

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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed (PTO speed 1098 rpm)					
63.2 (47.1)	2196	4.35 (16.45)	0.481 (0.292)	14.53 (2.86)	
Standard Power Take-off Speed (1000 rpm)					
66.6 (49.7)	2001	4.17 (15.78)	0.437 (0.266)	15.99 (3.15)	
Maximum Power (2 hours)					
67.1 (50.0)	1949	4.12 (15.60)	0.429 (0.261)	16.27 (3.21)	

VARYING POWER AND FUEL CONSUMPTION

63.2 (47.1)	2196	4.35 (16.45)	0.481 (0.292)	14.53 (2.86)	Air temperature
55.4 (41.3)	2263	4.12 (15.58)	0.519 (0.316)	13.45 (2.65)	75°F (24°C)
42.1 (31.4)	2287	3.60 (13.61)	0.597 (0.363)	11.70 (2.30)	Relative humidity
28.2 (21.0)	2299	3.02 (11.42)	0.749 (0.456)	9.34 (1.84)	35%
14.2 (10.6)	2314	2.22 (8.42)	1.089 (0.662)	6.40 (1.26)	Barometer
--	2329	1.58 (5.99)	--	--	30.1" Hg (102.0 kPa)

Maximum Torque -211.5 lb.-ft. (286.8 Nm) at 1407 rpm

Maximum Torque Rise -40.0%

Torque rise at 1800 engine rpm -23%

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

Dates of Test: May to September, 1998

Manufacturer: AGCO Limited, 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** 15W-30 **API service classification** CD
Transmission and hydraulic lubricant SAE 15W-30 **Front axle lubricant** SAE 15W-30

ENGINE: Make Perkins Diesel **Type** four cylinder vertical with turbocharger **Serial No.** U822244C **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 3.937" x 5.00" (100.0 mm x 127.0 mm) **Compression ratio** 17.3 to 1
Displacement 243 cu in (3990 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** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

CHASSIS: **Type** front wheel assist **Serial No.** ABBE24ABXAE08999 **Tread width** rear 60.4" (1535 mm) to 83.9" (2130 mm) front 63.4" (1610 mm) to 75.4" (1915 mm) **Wheelbase** 92.3" (2350 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled power shift **Nominal travel speeds mph (km/h)** first 1.35 (2.18) second 1.62 (2.60) third 1.99 (3.20) fourth 2.37 (3.82) fifth 2.84 (4.57) sixth 3.39 (5.45) seventh 3.82 (6.14) eighth 4.56 (7.34) ninth 5.61 (9.03) tenth 6.70 (10.79) eleventh 8.00 (12.87) twelfth 9.56 (15.38) thirteenth 10.30 (16.59) fourteenth 12.32 (19.82) fifteenth 15.15 (24.38) sixteenth 18.09 (29.12) seventeenth 21.60 (34.76) eighteenth 25.81 (41.53) reverse 1.78 (2.87), 2.13 (3.43), 5.04 (8.11), 6.02 (9.69), 13.60 (21.89), 16.24 (26.15) **Clutch** single dry 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 1902 engine rpm or 1000 rpm at 2000 engine rpm **Unladen tractor mass** 8185 lb (3713 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

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 lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F cool- ing med	Air dry bulb (°C)	Barom. inch Hg (kPa)
Maximum Power 7th (1ML) Gear									
51.6 (38.5)	5212 (23.2)	3.71 (5.98)	2207	4.6	0.585 (0.356)	11.93 (2.35)	187 (86)	59 (15)	29.6 (100.2)
75% of Pull at Maximum Power 7th (1ML) Gear									
40.4 (30.1)	3900 (17.4)	3.88 (6.24)	2277	3.6	0.684 (0.416)	10.20 (2.01)	187 (86)	61 (16)	29.6 (100.2)
50% of Pull at Maximum Power 7th (1ML) Gear									
27.5 (20.5)	2610 (11.6)	3.95 (6.35)	2293	2.6	0.834 (0.507)	8.38 (1.65)	187 (87)	61 (16)	29.6 (100.2)
75% of Pull at Reduced Engine Speed 8th (1MH) Gear									
40.5 (30.2)	3920 (17.4)	3.87 (6.23)	1906	3.7	0.560 (0.341)	12.48 (2.46)	186 (86)	63 (17)	29.6 (100.2)
50% of Pull at Reduced Engine Speed 8th (1MH) Gear									
27.4 (20.4)	2610 (11.6)	3.94 (6.34)	1919	2.6	0.684 (0.416)	10.21 (2.01)	185 (85)	63 (17)	29.6 (100.2)

MAXIMUM POWER IN SELECTED GEARS

1st (1LL) Gear									
27.9 (20.8)	8545 (38.0)	1.22 (1.97)	2288	15.1	0.847 (0.515)	8.25 (1.63)	187 (86)	63 (17)	29.6 (100.2)
2nd (1LH) Gear									
33.7 (25.1)	8500 (37.8)	1.49 (2.39)	2283	12.9	0.754 (0.459)	9.26 (1.82)	187 (87)	63 (17)	29.6 (100.2)
3rd (2LL) Gear									
41.2 (30.7)	8365 (37.2)	1.85 (2.97)	2266	11.4	0.695 (0.423)	10.05 (1.98)	187 (86)	61 (16)	29.6 (100.2)
4th (2LH) Gear									
47.7 (35.6)	8140 (36.2)	2.20 (3.54)	2215	9.7	0.634 (0.385)	11.03 (2.17)	187 (86)	61 (16)	29.6 (100.2)
5th (3LL) Gear									
52.2 (38.9)	7555 (33.6)	2.59 (4.17)	2138	7.5	0.576 (0.350)	12.13 (2.39)	187 (86)	59 (15)	29.6 (100.2)
6th (3LH) Gear									
54.2 (40.4)	7125 (31.7)	2.85 (4.59)	1952	6.8	0.533 (0.324)	13.10 (2.58)	192 (89)	61 (16)	29.6 (100.2)
7th (1ML) Gear									
55.0 (41.0)	6360 (28.3)	3.24 (5.21)	1946	5.7	0.523 (0.318)	13.35 (2.63)	187 (86)	59 (15)	29.6 (100.2)
8th (1MH) Gear									
54.8 (40.9)	5240 (23.3)	3.92 (6.31)	1949	4.6	0.525 (0.319)	13.30 (2.62)	187 (86)	55 (13)	29.6 (100.1)
9th (2ML) Gear									
54.7 (40.8)	4225 (18.8)	4.86 (7.82)	1946	3.8	0.527 (0.321)	13.25 (2.61)	187 (86)	57 (14)	29.6 (100.1)
10th (2MH) Gear									
54.5 (40.7)	3495 (15.5)	5.85 (9.42)	1953	3.2	0.529 (0.322)	13.20 (2.60)	187 (86)	57 (14)	29.6 (100.2)
11th (3ML) Gear									
52.8 (39.4)	2830 (12.6)	7.00 (11.26)	1945	2.7	0.547 (0.333)	12.78 (2.52)	187 (86)	57 (14)	29.6 (100.2)
12th (3MH) Gear									
51.4 (38.3)	2290 (10.2)	8.42 (13.55)	1951	2.3	0.563 (0.342)	12.41 (2.44)	187 (86)	57 (14)	29.6 (100.2)
13th (1HL) Gear									
51.6 (38.5)	2130 (9.5)	9.09 (14.63)	1950	2.2	0.555 (0.338)	12.59 (2.48)	187 (86)	57 (14)	29.6 (100.2)

TRACTOR SOUND LEVEL WITH CAB		Front Wheel Drive Disengaged dB(A)	Drive Engaged dB(A)
Maximum sound level in 8th (1MH) gear		82.0	82.0
Bystander in 18th (3HH) gear		83.0	--

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturers 3 point lift capacity claim of 5732 lbs (2600 kg), optionally 6614 lbs (3000 kg) at lower link ends. The performance results on this summary were taken from OECD tests conducted under the Code 2 Test Code Procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1799**, Nebraska Summary 277, May 12, 1999.

LEONARD L. BASHFORD
Director

M.F. KOCHER
R.D. GRISSO
G.J. HOFFMAN
Board of Tractor Test Engineers

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 9th (2ML) Gear									
51.1 (38.1)	3555 (15.8)	5.39 (8.68)	2198	3.4	0.593 (0.361)	11.78 (2.32)	186 (86)	57 (14)	29.8 (100.9)
75% of Pull at Maximum Power 9th (2ML) Gear									
39.8 (29.7)	2650 (11.8)	5.63 (9.06)	2274	2.7	0.688 (0.418)	10.15 (2.00)	186 (86)	59 (15)	29.8 (100.9)
50% of Pull at Maximum Power 9th (2ML) Gear									
27.0 (20.1)	1770 (7.9)	5.72 (9.20)	2292	1.9	0.847 (0.515)	8.25 (1.63)	186 (86)	59 (15)	29.8 (100.9)
75% of Pull at Reduced Engine Speed 10th (2MH) Gear									
39.8 (29.7)	2655 (11.8)	5.62 (9.04)	1903	2.8	0.568 (0.345)	12.30 (2.42)	185 (85)	64 (18)	29.9 (101.1)
50% of Pull at Reduced Engine Speed 10th (2MH) Gear									
27.2 (20.3)	1785 (7.9)	5.71 (9.19)	1921	2.1	0.676 (0.411)	10.33 (2.03)	185 (85)	64 (18)	29.9 (101.1)

MAXIMUM POWER IN SELECTED GEARS

2nd (1LH) Gear									
24.0 (17.9)	6295 (28.0)	1.43 (2.30)	2292	15.0	0.930 (0.566)	7.51 (1.48)	186 (86)	63 (17)	29.8 (101.0)
3rd (2LL) Gear									
29.4 (21.9)	6170 (27.4)	1.79 (2.87)	2286	13.4	0.818 (0.497)	8.54 (1.68)	186 (86)	64 (18)	29.8 (101.0)
4th (2LH) Gear									
35.4 (26.4)	6160 (27.4)	2.16 (3.47)	2279	12.0	0.740 (0.450)	9.44 (1.86)	186 (86)	61 (16)	29.8 (101.0)
5th (3LL) Gear									
41.8 (31.2)	6085 (27.1)	2.58 (4.15)	2262	11.4	0.681 (0.414)	10.25 (2.02)	189 (87)	63 (17)	29.8 (101.0)
6th (3LH) Gear									
48.9 (36.5)	5980 (26.6)	3.07 (4.94)	2199	9.2	0.620 (0.377)	11.27 (2.22)	189 (87)	61 (16)	29.8 (101.0)
7th (1ML) Gear									
52.0 (38.8)	5720 (25.4)	3.41 (5.49)	2133	7.4	0.580 (0.353)	12.03 (2.37)	189 (87)	57 (14)	29.8 (100.9)
8th (1MH) Gear									
53.8 (40.1)	5340 (23.8)	3.78 (6.08)	1948	6.3	0.535 (0.325)	13.06 (2.57)	187 (86)	57 (14)	29.8 (100.8)
9th (2ML) Gear									
54.8 (40.9)	4345 (19.3)	4.73 (7.62)	1946	4.3	0.523 (0.318)	13.25 (2.63)	187 (86)	57 (14)	29.8 (100.9)
10th (2MH) Gear									
54.3 (40.5)	3560 (15.8)	5.72 (9.20)	1950	3.4	0.528 (0.321)	13.22 (2.60)	187 (86)	57 (14)	29.8 (100.9)
11th (3ML) Gear									
53.9 (40.2)	2940 (13.1)	6.88 (11.07)	1953	2.8	0.533 (0.324)	13.10 (2.58)	187 (86)	57 (14)	29.8 (100.9)
12th (3MH) Gear									
53.2 (39.7)	2420 (10.8)	8.24 (13.26)	1950	2.4	0.542 (0.330)	12.89 (2.54)	187 (86)	57 (14)	29.8 (100.9)
13th (1HL) Gear									
53.5 (39.9)	2245 (10.0)	8.93 (14.37)	1956	2.3	0.538 (0.327)	12.99 (2.56)	187 (86)	57 (14)	29.8 (100.9)

TIRES AND WEIGHT

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

Tested Without Ballast

Two 18.4R34;**,12(83)
Two 14.9R24;**,15(103)

Height of Drawbar
Static Weight with operator

Rear 20.9 in (530 mm)
Front 4985 lb (2262 kg)
Total 3365 lb (1526 kg)
8350 lb (3788 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

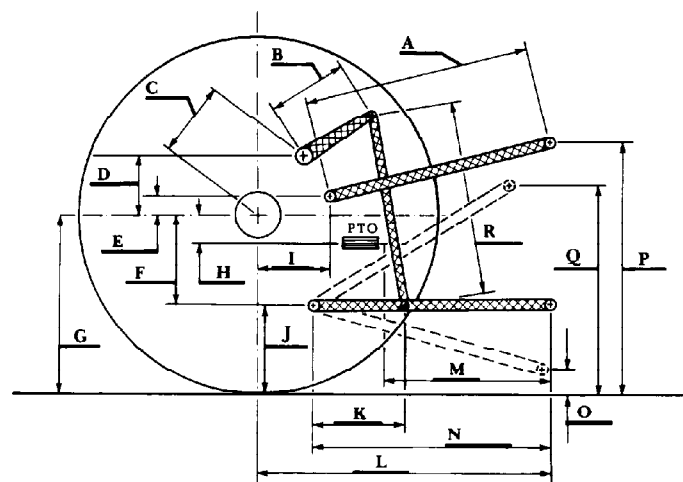
CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range: 4495 lbs (20.0 kN)(at the frame)
5260 lbs (23.4 kN)(at the hitch points)

- i) Opening pressure of relief valve: NA
Sustained pressure of the open relief valve: 3045 psi (210 bar)
- ii) Pump delivery rate at minimum pressure: 10.6 GPM (40.0 l/min)
- iii) Pump delivery rate at maximum
hydraulic power: 9.5 GPM (36.0 l/min)
Delivery pressure: 2685 psi (185 bar)
Power: 14.9 HP (11.1 kW)

HITCH DIMENSIONS AS TESTED NO LOAD



	inch	mm
A	32.1	815
B	12.2	310
C	12.0	304
D	9.2	233
E	8.1	205
F	8.3	212
G	30.3	770
H	5.4	138
I	7.3	186
J	22.0	558
K	24.8	630
L	40.1	1018
M	27.0	685
N	41.3	1050
O	7.7	195
P	46.0	1168
Q	35.2	895
R	29.9	760