January 1997

Nebraska Summary 280: Massey Ferguson 4370 and 4270 Diesel 12-Speed

Nebraska Tractor Test Lab
University of Nebraska-Lincoln, tractortestlab@unl.edu

SUMMARY OF OECD TEST 1715–NEBRASKA SUMMARY 280
MASSEY FERGUSON 4270 DIESEL
ALSO MASSEY FERGUSON 4370 DIESEL
12 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed (PTO speed 1100 rpm)					
100.3	2199	6.22	0.440	16.13	
(74.8)		*(23.54)*	*(0.268)*	*(3.18)*	
Maximum Power (2 hours)					
101.5	2100	6.03	0.421	16.83	
(75.7)		*(22.83)*	*(0.256)*	*(3.32)*	
Standard Power Take-off Speed (1000 rpm)					
100.8	2000	5.77	0.406	17.48	
(75.2)		*(21.84)*	*(0.247)*	*(3.44)*	
VARYING POWER AND FUEL CONSUMPTION					
100.3	2199	6.22	0.440	16.13	Air temperature
(74.8)		*(23.54)*	*(0.268)*	*(3.18)*	
86.9	2245	5.77	0.471	15.05	68°F *(20°C)*
(64.8)		*(21.86)*	*(0.287)*	*(2.97)*	
65.7	2262	4.91	0.529	13.39	Relative humidity
(49.0)		*(18.57)*	*(0.322)*	*(2.64)*	
44.0	2276	3.94	0.636	11.16	56%
(32.8)		*(14.92)*	*(0.387)*	*(2.20)*	
22.1	2291	2.88	0.924	7.68	Barometer
(16.5)		*(10.91)*	*(0.562)*	*(1.51)*	
--	2308	1.93	--	--	29.5" Hg *(100.0 kPa)*
--		*(7.30)*	--	--	

Maximum Torque - 316.6 lb.-ft. *(429.2 Nm)* at 1254 rpm
Maximum Torque Rise - 32.1%
Torque rise at 1800 engine rpm - 18%

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)*
Maximum Power 6th(2M) Gear									
79.0	7295	4.06	2203	6.3	0.547	12.79	180	72	29.9
(58.9)	*(32.4)*	*(6.53)*			*(0.333)*	*(2.52)*	*(82)*	*(22)*	*(101.4)*
75% of Pull at Maximum Power 6th(2M) Gear									
61.6	5465	4.23	2251	4.5	0.611	11.46	180	77	29.9
(45.9)	*(24.3)*	*(6.80)*			*(0.372)*	*(2.26)*	*(82)*	*(25)*	*(101.3)*
50% of Pull at Maximum Power 6th(2M) Gear									
42.0	3650	4.31	2266	3.3	0.746	9.39	178	77	29.9
(31.3)	*(16.2)*	*(6.94)*			*(0.454)*	*(1.85)*	*(81)*	*(25)*	*(101.3)*
75% of Pull at Reduced Engine Speed 7th(3M) Gear									
61.7	5465	4.23	1714	4.4	0.482	14.52	178	77	29.9
(46.0)	*(24.3)*	*(6.80)*			*(0.293)*	*(2.86)*	*(81)*	*(25)*	*(101.3)*
50% of Pull at Reduced Engine Speed 7th(3M) Gear									
42.1	3665	4.31	1725	3.2	0.554	12.64	176	75	29.9
(31.4)	*(16.3)*	*(6.94)*			*(0.337)*	*(2.49)*	*(80)*	*(24)*	*(101.3)*

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

Dates of Test: June - July, 1997

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)*** 0.852 **Fuel weight** 7.09 lbs/gal *(0.850 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** six cylinder vertical with turbocharger **Serial No.** 33200PLO2U623843 **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** 365 cu in *(5985 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.** ABCD14AAXAE12999 **Tread width** rear 60.0" *(1525 mm)* to 88.0" *(2235 mm)* front 68.1" *(1730 mm)* to 80.1" *(2035 mm)* **Wheelbase** 102.7" *(2609 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph *(km/h)*** first 1.14 *(1.84)* second 1.50 *(2.41)* third 1.96 *(3.16)* fourth 2.57 *(4.14)* fifth 3.23 *(5.19)* sixth 4.22 *(6.79)* seventh 5.54 *(8.91)* eighth 7.25 *(11.67)* ninth 8.72 *(14.03)* tenth 11.40 *(18.34)* eleventh 14.95 *(24.07)* twelfth 19.59 *(31.52)* reverse 1.16 *(1.87)*, 1.52 *(2.45)*, 1.99 *(3.21)*, 2.62 *(4.21)*, 3.29 *(5.29)*, 4.29 *(6.91)*, 5.64 *(9.07)*, 7.38 *(11.87)*, 8.87 *(14.27)*, 11.58 *(18.65)*, 15.21 *(24.48)*, 19.92 *(32.05)* **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** 9105 lb *(4131 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					
33.3 *(24.8)*	9330 *(41.5)*	1.34 *(2.15)*	2261	15.2	0.865 *(0.526)*	8.10 *(1.60)*	176 *(80)*	68 *(20)*	29.9 *(101.1)*
				3rd(3L) Gear					
44.3 *(33.0)*	9105 *(40.5)*	1.82 *(2.94)*	2253	11.6	0.740 *(0.450)*	9.47 *(1.87)*	178 *(81)*	68 *(20)*	29.9 *(101.1)*
				4th(4L) Gear					
57.7 *(43.0)*	9035 *(40.2)*	2.39 *(3.85)*	2241	10.9	0.644 *(0.392)*	10.86 *(2.14)*	178 *(81)*	68 *(20)*	29.9 *(101.1)*
				5th(1M) Gear					
72.3 *(53.9)*	9060 *(40.3)*	2.99 *(4.81)*	2224	10.7	0.582 *(0.354)*	12.03 *(2.37)*	176 *(80)*	68 *(20)*	29.9 *(101.1)*
				6th(2M) Gear					
79.8 *(59.5)*	7755 *(34.5)*	3.86 *(6.21)*	2105	6.8	0.519 *(0.316)*	13.47 *(2.65)*	180 *(82)*	72 *(22)*	29.9 *(101.4)*
				7th(3M) Gear					
80.5 *(60.0)*	5825 *(25.9)*	5.18 *(8.34)*	2108	4.7	0.517 *(0.314)*	13.55 *(2.67)*	180 *(82)*	70 *(21)*	29.9 *(101.4)*
				8th(4M) Gear					
79.4 *(59.2)*	4345 *(19.3)*	6.85 *(11.02)*	2103	3.7	0.523 *(0.318)*	13.40 *(2.64)*	180 *(82)*	70 *(21)*	29.9 *(101.4)*
				9th(1H) Gear					
79.6 *(59.4)*	3605 *(16.0)*	8.28 *(13.33)*	2104	3.2	0.523 *(0.318)*	13.40 *(2.64)*	180 *(82)*	72 *(22)*	29.9 *(101.4)*
				10th(2H) Gear					
78.2 *(58.3)*	2695 *(12.0)*	10.89 *(17.52)*	2101	2.5	0.535 *(0.325)*	13.10 *(2.58)*	180 *(82)*	72 *(22)*	29.9 *(101.4)*

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 manufacturers 3 point lift capacity claim of 11023 lb *(5000 kg)* at lower link ends nor 7240 lbs *(3284 kg)* at 24". The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

Report reissued: Supplemental sales permit for Massey Ferguson 4370 Diesel, April, 2002.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1715**, Nebraska Summary 280, April 16, 2002.

Brent T. Sampson
Test Engineer

L.L. Bashford
M.F. Kocher
V.I. Adamchuk
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	**Front Wheel Drive Disengaged dB(A)**	**Engaged dB(A)**
Maximum Sound level in 6th (2M) gear	83.0	83.0
Bystander in 12th(4H) Gear	86.0	--

TIRES AND WEIGHT — **Tested Without Ballast**

Rear tires - No.,size, ply & psi*(kPa)*	Two 18.4R38; **;12*(83)*
Front tires - No.,size, ply & psi*(kPa)*	Two 14.9R28; **;15*(103)*
Height of Drawbar	22.4 in *(570 mm)*
Static Weight with operator- Rear	5480 lb *(2485 kg)*
- Front	3795 lb *(1721 kg)*
- Total	9275 lb *(4206 kg)*

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Disengaged)

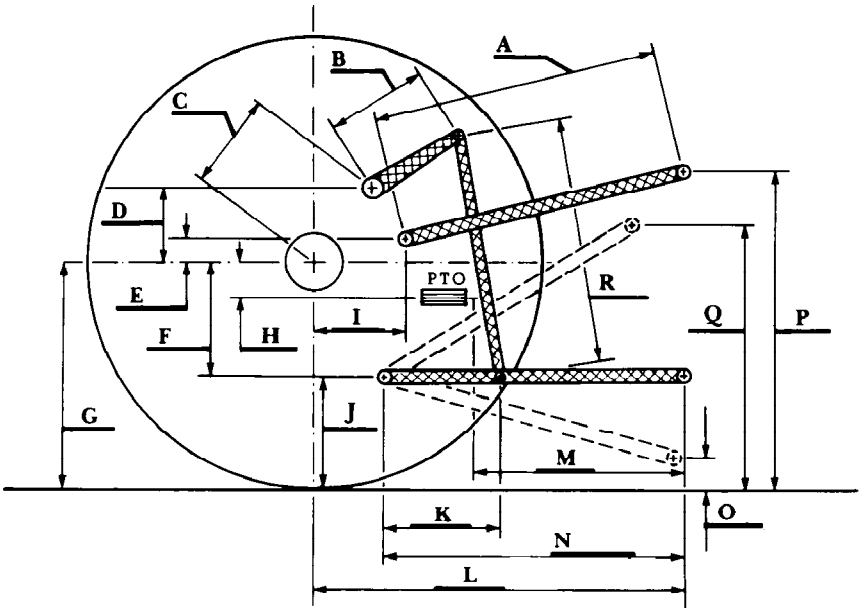
FUEL CONSUMPTION CHARACTERISTICS

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(1H) Gear									
79.5	3535	8.43	2202	3.7	0.531	13.20	178	73	30.0
(59.3)	*(15.7)*	*(13.57)*			*(0.323)*	*(2.60)*	*(82)*	*(23)*	*(101.7)*
75% of Pull at Maximum Power 9th(1H) Gear									
60.9	2645	8.64	2235	2.7	0.605	11.57	180	73	30.0
(45.4)	*(11.8)*	*(13.90)*			*(0.368)*	*(2.28)*	*(82)*	*(23)*	*(101.7)*
50% of Pull at Maximum Power 9th(1H) Gear									
41.6	1775	8.78	2254	2.1	0.737	9.50	180	73	30.0
(31.0)	*(7.9)*	*(14.13)*			*(0.448)*	*(1.87)*	*(82)*	*(23)*	*(101.7)*
75% of Pull at Reduced Engine Speed 10th(2H) Gear									
60.9	2645	8.63	1709	2.7	0.468	14.97	176	73	30.0
(45.4)	*(11.8)*	*(13.89)*			*(0.284)*	*(2.95)*	*(80)*	*(23)*	*(101.7)*
50% of Pull at Reduced Engine Speed 10th(2H) Gear									
41.6	1775	8.79	1726	2.1	0.543	12.88	174	73	30.0
(31.0)	*(7.9)*	*(14.14)*			*(0.331)*	*(2.54)*	*(79)*	*(23)*	*(101.7)*
MAXIMUM POWER IN SELECTED GEARS									
3rd(3L) Gear									
30.2	6610	1.71	2263	15.0	0.897	7.80	178	73	30.1
(22.5)	*(29.4)*	*(2.75)*			*(0.546)*	*(1.54)*	*(81)*	*(23)*	*(101.8)*
4th(4L) Gear									
40.2	6540	2.31	2256	12.9	0.773	9.06	176	72	30.1
(30.0)	*(29.1)*	*(3.72)*			*(0.470)*	*(1.79)*	*(80)*	*(22)*	*(101.8)*
5th(1M) Gear									
49.6	6290	2.96	2250	10.7	0.683	10.25	176	70	30.1
(37.0)	*(28.0)*	*(4.76)*			*(0.415)*	*(2.02)*	*(80)*	*(21)*	*(101.9)*
6th(2M) Gear									
63.3	6135	3.87	2249	10.7	0.607	11.54	176	70	30.1
(47.2)	*(27.3)*	*(6.23)*			*(0.369)*	*(2.27)*	*(80)*	*(21)*	*(101.9)*
7th(3M) Gear									
79.7	6025	4.96	2161	9.1	0.532	13.17	178	73	30.1
(59.4)	*(26.8)*	*(7.98)*			*(0.323)*	*(2.59)*	*(81)*	*(23)*	*(101.8)*
8th(4M) Gear									
82.9	4720	6.59	2098	5.0	0.501	13.96	180	73	30.0
(61.8)	*(21.0)*	*(10.60)*			*(0.305)*	*(2.75)*	*(82)*	*(23)*	*(101.7*
9th(1H) Gear									
83.8	3935	7.99	2094	4.1	0.495	14.13	178	73	30.0
(62.5)	*(17.5)*	*(12.86)*			*(0.301)*	*(2.78)*	*(81)*	*(23)*	*(101.7)*
10th(2H) Gear									
82.6	2945	10.52	2090	3.1	0.502	13.96	180	73	30.0
(61.6)	*(13.1)*	*(16.93)*			*(0.305)*	*(2.75)*	*(82)*	*(23)*	*(101.7)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II
Quick Attach: None

Maximum Force Exerted Through Whole Range:	7080 lbs	*(31.5 kN)*(at the frame)
	7960 lbs	*(35.4 kN)*(at the hitch points)
i) Opening pressure of relief valve:	NA	
Sustained pressure of the open relief valve:	3050 psi	*(210 bar)*
ii) Pump delivery rate at minimum pressure:	10.2 GPM	*(38.6 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	9.4 GPM	*(35.5 l/min)*
Delivery pressure:	2685 psi	*(185 bar)*
Power:	14.7 HP	*(11.0 kW)*



HITCH DIMENSIONS AS TESTED	NO LOAD inch	*mm*
A	33.9	*860*
B	12.2	*310*
C	12.0	*304*
D	9.2	*233*
E	8.1	*205*
F	8.4	*212*
G	32.3	*820*
H	5.4	*138*
I	7.3	*186*
J	23.9	*608*
K	24.2	*615*
L	42.0	*1068*
M	28.9	*735*
N	43.3	*1100*
O	7.8	*197*
P	48.0	*1218*
Q	36.2	*920*
R	29.8	*756*

Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska Lincoln
Darrell Nelson, Dean and Director