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## Nebraska Summary 429: Case IH MX M120 Diesel

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# SUMMARY OF OECD TEST 2086–NEBRASKA SUMMARY 429

## CASE IH MXM120 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—1039 rpm)</b>					
100.7 (75.1)	2202	6.77 (25.63)	0.472 (0.287)	14.87 (2.93)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
104.1 (77.6)	2120	6.66 (25.20)	0.449 (0.273)	15.63 (3.08)	
<b>Maximum Power (2 hours)</b>					
104.9 (78.2)	2005	6.42 (24.32)	0.430 (0.262)	16.33 (3.22)	

#### VARYING POWER AND FUEL CONSUMPTION

100.7 (75.1)	2202	6.77 (25.63)	0.472 (0.287)	14.87 (2.93)	Air temperature
90.3 (67.3)	2325	6.52 (24.68)	0.506 (0.308)	13.86 (2.73)	73°F (23°C)
68.3 (50.9)	2344	5.40 (20.43)	0.555 (0.338)	12.64 (2.49)	Relative humidity
45.9 (34.2)	2363	4.40 (16.67)	0.674 (0.410)	10.41 (2.05)	42%
23.5 (17.5)	2389	3.40 (12.88)	1.018 (0.620)	6.89 (1.36)	Barometer
--	2404	2.41 (9.13)	--	--	29.7" Hg (100.5 kPa)

Maximum Torque - 372.2 lb.-ft. (504.7 Nm) at 1154 rpm  
 Maximum Torque Rise - 55.0%  
 Torque rise at 1800 engine rpm - 25%

#### 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—9th(3B) Gear</b>									
83.0 (61.9)	6135 (27.3)	5.07 (8.16)	2205	3.3	0.571 (0.347)	12.29 (2.42)	196 (91)	43 (6)	30.4 (103.0)
<b>75% of Pull at Maximum Power—9th(3B) Gear</b>									
66.1 (49.3)	4610 (20.5)	5.39 (8.67)	2323	2.5	0.641 (0.390)	10.96 (2.16)	196 (91)	43 (6)	30.4 (103.0)
<b>50% of Pull at Maximum Power—9th(3B) Gear</b>									
44.9 (33.5)	3055 (13.6)	5.49 (8.84)	2350	1.8	0.794 (0.483)	8.84 (1.74)	196 (91)	41 (5)	30.4 (103.0)
<b>75% of Pull at Reduced Engine Speed—10th(4B) Gear</b>									
66.1 (49.3)	4610 (20.5)	5.38 (8.66)	1934	2.7	0.545 (0.332)	12.88 (2.54)	183 (84)	45 (7)	30.4 (103.0)
<b>50% of Pull at Reduced Engine Speed—10th(4B) Gear</b>									
44.7 (33.3)	3055 (13.6)	5.47 (8.81)	1950	2.0	0.675 (0.410)	10.41 (2.05)	183 (84)	45 (7)	30.4 (103.0)

**Location of Test:** Silsoe Research Institute, Wrest Park, Silsoe, MK45 4HS, United Kingdom

**Dates of Test:** December 2002 to March 2003.

**Manufacturer:** CNH U.K. Ltd., Basildon, Essex, SS14 3AD, England

**FUEL and OIL:** Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.843 Fuel weight 7.02 lbs/gal (0.8413 kg/l) Oil SAE 10W30 API service classification CG-4 Transmission and hydraulic lubricant Case IH Hytran Ultra fluid Front axle lubricant Case IH Hytran Ultra fluid

**ENGINE:** Make CNH Diesel Type six cylinder vertical with turbocharger and air to air intercooler Serial No. 958334 Crankshaft lengthwise Rated engine speed 2200 Bore and stroke 4.40" x 5.00" (111.8 mm x 127.0 mm) Compression ratio 17.0 to 1 Displacement 456 cu in (7480 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 underhood Exhaust vertical Cooling medium temperature control thermostat and variable speed fan

**CHASSIS:** Type front wheel assist Serial No. 170778B Tread width rear 60.2" (1530 mm) to 87.8" (2230 mm) front 61.4" (1560 mm) to 89.0" (2260 mm) Wheelbase 107.2" (2723 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (6) range operator controlled powershift Nominal travel speeds mph (km/h) first 1.53 (2.46) second 1.84 (2.96) third 2.21 (3.56) fourth 2.66 (4.28) fifth 3.19 (5.14) sixth 3.55 (5.72) seventh 3.85 (6.19) eighth 4.28 (6.88) ninth 5.13 (8.26) tenth 6.17 (9.93) eleventh 7.43 (11.95) twelfth 8.93 (14.37) thirteenth 10.08 (16.22) fourteenth 12.12 (19.50) fifteenth 14.56 (23.43) sixteenth 17.50 (28.17) seventeenth 21.06 (33.89) eighteenth 25.32 (40.75) reverse 2.98 (4.80), 3.59 (5.78), 4.31 (6.94), 5.18 (8.34), 6.24 (10.04), 7.50 (12.07) Clutch multiple wet disc electro-hydraulically operated by foot pedal Brakes wet disc hydraulically operated by two foot pedals that can be locked together Steering hydrostatic Power take-off 540 rpm at 1969 engine rpm or 1000 rpm at 2120 engine rpm Unladen tractor mass 11830 lb (5366 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)	Consumption Hp.hr/gal (kW.h/l)	Temp. <sup>o</sup> F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
1st(1A) Gear									
46.9 (35.0)	12320 (54.8)	1.43 (2.30)	2348	14.0	0.780 (0.474)	9.00 (1.77)	189 (87)	45 (7)	30.4 (103.0)
2nd(2A) Gear									
55.4 (41.3)	12025 (53.5)	1.73 (2.78)	2333	13.0	0.710 (0.432)	9.89 (1.95)	187 (86)	46 (8)	30.4 (103.0)
3rd(3A) Gear									
64.1 (47.8)	11490 (51.1)	2.09 (3.37)	2320	11.7	0.703 (0.428)	9.98 (1.97)	187 (86)	46 (8)	30.4 (103.0)
4th(4A) Gear									
75.2 (56.1)	11330 (50.4)	2.49 (4.01)	2264	10.5	0.635 (0.386)	11.07 (2.18)	187 (86)	48 (9)	30.4 (103.0)
5th(5A) Gear									
83.4 (62.2)	10770 (47.9)	2.90 (4.67)	2137	8.3	0.569 (0.346)	12.33 (2.43)	185 (85)	48 (8)	30.4 (103.0)
6th(1B) Gear									
87.0 (64.9)	10655 (47.4)	3.06 (4.93)	2003	6.9	0.520 (0.317)	13.49 (2.66)	187 (86)	39 (4)	30.4 (103.1)
7th(6A) Gear									
85.6 (63.8)	9555 (42.5)	3.36 (5.41)	2002	5.7	0.532 (0.324)	13.20 (2.60)	187 (86)	41 (5)	30.4 (103.1)
8th(2B) Gear									
87.8 (65.5)	8745 (38.9)	3.77 (6.07)	2004	4.9	0.514 (0.313)	13.65 (2.69)	196 (91)	39 (4)	30.5 (103.2)
9th(3B) Gear									
88.5 (66.0)	7285 (32.4)	4.55 (7.33)	1995	3.9	0.506 (0.308)	13.86 (2.73)	196 (91)	43 (6)	30.4 (103.1)
10th(4B) Gear									
87.0 (64.9)	5890 (26.2)	5.54 (8.91)	2002	3.3	0.522 (0.317)	13.45 (2.65)	196 (91)	39 (4)	30.5 (103.2)
11th(5B) Gear									
86.4 (64.4)	4835 (21.5)	6.70 (10.78)	2002	2.7	0.528 (0.321)	13.30 (2.62)	196 (91)	39 (4)	30.5 (103.2)
12th(6B) Gear									
83.7 (62.4)	3890 (17.3)	8.08 (13.00)	1998	2.3	0.546 (0.332)	12.85 (2.53)	196 (91)	37 (3)	30.5 (103.2)
13th(1C) Gear									
88.2 (65.8)	3620 (16.1)	9.17 (14.76)	2005	2.2	0.512 (0.311)	13.72 (2.70)	194 (90)	37 (3)	30.4 (103.1)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
At no load in 8th (2B) gear	75.0	76.0
Bystander	--	--

#### 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 18.4R38; \*\*,14 (95)

Two 14.9R28; \*\*,14 (95)

19.7 in (500 mm)

7240 lb (3285 kg)

4755 lb (2156 kg)

11995 lb (5441 kg)

**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 claim of 72.0 dB(A) cab sound level. The standard capacity 3 point lift claim of 9755 lbs (4425 kg) was not tested for verification. 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 Report No. **2086** Nebraska Summary 429, September 17, 2004.

Leonard L. Bashford  
Director

M.F. Kocher  
V.I. Adamchuk  
W.P. Campbell  
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)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F cool- ing med	Temp. °C Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—8th(2B) Gear</b>									
83.7 (62.4)	7825 (34.8)	4.01 (6.46)	2203	6.5	0.576 (0.350)	12.19 (2.40)	185 (91)	41 (5)	30.2 (102.2)
<b>75% of Pull at Maximum Power—8th(2B) Gear</b>									
68.1 (50.8)	5870 (26.1)	4.35 (7.00)	2321	3.7	0.621 (0.378)	11.31 (2.23)	183 (90)	41 (5)	30.2 (102.2)
<b>50% of Pull at Maximum Power—8th(2B) Gear</b>									
46.8 (34.9)	3910 (17.4)	4.48 (7.21)	2353	2.3	0.728 (0.443)	9.64 (1.90)	183 (87)	41 (5)	30.2 (102.1)
<b>75% of Pull at Reduced Engine Speed—9th(3B) Gear</b>									
68.0 (50.7)	5870 (26.1)	4.34 (6.99)	1937	4.2	0.551 (0.335)	12.74 (2.51)	183 (85)	45 (7)	30.1 (101.9)
<b>50% of Pull at Reduced Engine Speed—9th(3B) Gear</b>									
46.5 (34.7)	3910 (17.4)	4.47 (7.19)	1962	2.8	0.626 (0.381)	11.22 (2.21)	181 (86)	45 (7)	30.1 (101.9)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
2nd(2A) Gear									
40.9 (30.5)	9060 (40.3)	1.70 (2.73)	2352	14.0	0.820 (0.499)	8.56 (1.69)	196 (91)	46 (8)	30.1 (101.9)
3rd(3A) Gear									
48.5 (36.2)	8925 (39.7)	2.04 (3.28)	2340	13.5	0.780 (0.474)	9.00 (1.77)	189 (87)	45 (7)	30.1 (101.9)
4th(4A) Gear									
59.1 (44.1)	8950 (39.8)	2.47 (3.98)	2323	12.1	0.747 (0.454)	9.40 (1.85)	189 (87)	45 (7)	30.1 (101.9)
5th(5A) Gear									
69.2 (51.6)	8745 (38.9)	2.96 (4.77)	2301	11.5	0.675 (0.410)	10.41 (2.05)	187 (86)	45 (7)	30.1 (101.9)
6th(1B) Gear									
76.4 (57.0)	8720 (38.8)	3.29 (5.29)	2267	10.4	0.640 (0.389)	10.96 (2.16)	185 (85)	45 (7)	30.1 (101.9)
7th(6A) Gear									
78.2 (58.3)	8610 (38.3)	3.41 (5.48)	2156	9.9	0.612 (0.372)	11.47 (2.26)	187 (86)	45 (7)	30.1 (101.9)
8th(2B) Gear									
85.3 (63.6)	8500 (37.8)	3.77 (6.06)	2086	7.3	0.547 (0.333)	12.84 (2.53)	187 (86)	43 (6)	30.2 (102.1)
9th(3B) Gear									
86.9 (64.8)	7375 (32.8)	4.42 (7.12)	1998	5.3	0.520 (0.316)	13.50 (2.66)	196 (91)	41 (5)	30.2 (102.2)
10th(4B) Gear									
87.2 (65.0)	6045 (26.9)	5.41 (8.71)	1998	3.7	0.526 (0.320)	13.35 (2.63)	196 (91)	41 (5)	30.2 (102.2)
11th(5B) Gear									
86.4 (64.4)	4900 (21.8)	6.60 (10.62)	2010	3.0	0.523 (0.318)	13.40 (2.64)	196 (91)	41 (5)	30.2 (102.2)
12th(6B) Gear									
83.0 (61.9)	3890 (17.3)	7.98 (12.85)	2008	2.3	0.540 (0.329)	12.99 (2.56)	185 (85)	41 (5)	30.2 (102.1)
13th(1C) Gear									
88.6 (66.1)	3665 (16.3)	9.06 (14.58)	2016	2.3	0.516 (0.314)	13.60 (2.68)	187 (86)	41 (5)	30.2 (102.1)

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

CATEGORY: II

Quick Attach: None

Maximum Force Exerted

Through Whole Range: 7485 lbs (33.3 kN) (with boost cylinder)

- i) Opening pressure of relief valve: NA
- Sustained pressure of the open relief valve: 2960 psi (204 bar)
- ii) Pump delivery rate at minimum pressure: 32.1 GPM (121.5 l/min)
- iii) Pump delivery rate at maximum
  - hydraulic power: 28.5 GPM (107.9 l/min)
  - Delivery pressure: 2460 psi (170 bar)
  - Power: 41.0 HP (30.6 kW)

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi.(bar)	2960(204)
Location:	lift cylinder
Hydraulic oil temperature: °F(°C)	150(65)
Location:	hydraulic sump
Category:	II
Quick attach:	none

#### SAE Static Test—System pressure 2610 psi (180 Bar) (with boost cylinder)

Hitch point distance to ground level in.(mm)	8.0(203)	15.7(400)	22.4(570)	29.7(755)	37.0(940)
Lift force on frame lb	13490	14075	14095	13890	12295
" " " " " " (kN)	(60.0)	(62.6)	(62.7)	(61.8)	(54.7)

### HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	mm	inch	mm
A	29.7	754	29.9	760
B	9.1	230	9.1	230
C	15.6	395	15.6	395
D	14.3	363	14.3	363
E	8.2	208	10.8	275
F	9.8	250	9.8	250
G	32.3	820	32.3	820
H	0.7	17	0.7	17
I	17.9	455	16.9	430
J	22.5	570	22.5	570
K	17.1	435	19.8	504
L	47.0	1194	47.0	1194
M	23.3	592	23.3	592
N	38.3	974	38.3	974
O	7.8	198	8.0	203
P	46.5	1180	41.5	1053
Q	36.2	920	33.3	845
R	29.3	745	31.0	787

