January 2003

Test 1828: Case IH MX 285 Diesel

NEBRASKA OECD TRACTOR TEST 1828–SUMMARY 416
CASE IH MX 285 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1003 rpm)					
242.24 *(180.64)*	2000	13.60 *(51.50)*	0.395 *(0.240)*	17.81 *(3.51)*	
Maximum Power (2 hours)					
276.12 *(205.90)*	1700	14.73 *(55.75)*	0.375 *(0.228)*	18.75 *(3.69)*	
VARYING POWER AND FUEL CONSUMPTION					
242.24 *(180.64)*	2000	13.60 *(51.50)*	0.395 *(0.240)*	17.81 *(3.51)*	Air temperature
214.39 *(159.87)*	2085	12.41 *(46.99)*	0.407 *(0.248)*	17.27 *(3.40)*	78°F *(25°C)*
163.89 *(122.21)*	2121	10.28 *(38.91)*	0.441 *(0.268)*	15.94 *(3.14)*	Relative humidity
111.45 *(83.11)*	2161	7.59 *(28.74)*	0.479 *(0.291)*	14.68 *(2.89)*	63%
56.70 *(42.28)*	2200	5.03 *(19.05)*	0.624 *(0.380)*	11.27 *(2.22)*	Barometer
1.07 *(0.80)*	2237	2.86 *(10.82)*	18.818 *(11.446)*	0.37 *(0.07)*	28.77" Hg *(97.43 kPa)*

Maximum Torque - 947 lb.-ft. *(1283 Nm)* at 1402 rpm
Maximum Torque Rise - 48.8%
Torque rise at 1600 engine rpm - 38%

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)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F cool-ing med	*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—7th Gear									
203.74 *(151.93)*	18108 *(80.55)*	4.22 *(6.79)*	1990	6.17	0.470 *(0.286)*	14.95 *(2.95)*	188 *(87)*	60 *(16)*	28.88 *(97.80)*
75% of Pull at Maximum Power—7th Gear									
163.92 *(122.23)*	13579 *(60.40)*	4.53 *(7.29)*	2085	3.89	0.509 *(0.310)*	13.81 *(2.72)*	191 *(88)*	74 *(23)*	28.88 *(97.80)*
50% of Pull at Maximum Power—7th Gear									
113.45 *(84.60)*	9036 *(40.20)*	4.71 *(7.58)*	2129	2.11	0.565 *(0.344)*	12.44 *(2.45)*	187 *(86)*	81 *(27)*	28.83 *(97.63)*
75% of Pull at Reduced Engine Speed—9th Gear									
163.98 *(122.28)*	13575 *(60.38)*	4.53 *(7.29)*	1578	3.97	0.454 *(0.276)*	15.49 *(3.05)*	189 *(87)*	76 *(24)*	28.87 *(97.77)*
50% of Pull at Reduced Engine Speed—9th Gear									
113.82 *(84.88)*	9041 *(40.21)*	4.72 *(7.60)*	1615	2.20	0.487 *(0.296)*	14.45 *(2.85)*	185 *(85)*	83 *(28)*	28.82 *(97.60)*

Location of Test: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln, Nebraska 68583-0832

Dates of Test: September 9 - October 24 , 2003

Manufacturer: CNH America LLC, 700 State Street , Racine, Wi. 53404 USA

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.8447 **Fuel weight** 7.033 lbs/gal *(0.843 kg/l)* **Oil SAE** 15W40 **API service classification** SF/CD/CE **Transmission and hydraulic lubricant** Case IH Hy-Tran Ultra fluid **Front axle lubricant** SAE 85W-140 API GL-5 **Total time engine was operated:** 43.5 hours

ENGINE: Make Consolidated Diesel Corporation Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** *46273650* **Crankshaft** lengthwise **Rated engine speed** 2000 **Bore and stroke** 4.488" x 5.315" *(114.0 mm x 135.0 mm)* **Compression ratio** 17.0 to 1 **Displacement** 505 cu in *(8268 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** two paper elements and prefilter **Fuel cooler** radiator for pump return fuel **Muffler** vertical **Cooling medium temperature control** 2 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 92.8-102.0 lb/h *(42.2 - 46.3 kg/h)* **High idle:** 2180-2270 rpm **Turbo boost:** nominal 23.2 -27.6 psi *(160 - 190 kPa)* as measured 24.6 psi *(170 kPa)*

CHASSIS: Type front wheel assist **Serial No.** *JAZ126247* **Tread width** rear 64.0" *(1626 mm)* to 129.0" *(3277 mm)* front 60.0" *(1524 mm)* to 88.0" *(2235 mm)* **Wheelbase** 118.3" *(3005 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 1.96 *(3.15)* second 2.24 *(3.61)* third 2.58 *(4.16)* fourth 2.96 *(4.77)* fifth 3.41 *(5.48)* sixth 3.90 (*6.28)* seventh 4.55 *(7.33)* eighth 5.23 *(8.41)* ninth 6.02 *(9.69)* tenth 6.91 *(11.12)* eleventh 7.92 *(12.75)* twelfth 9.09 *(14.63)* thirteenth 11.33 *(18.23)* fourteenth 12.99 *(20.91)* fifteenth 14.98 *(24.11)* sixteenth 17.19 *(27.66)* seventeenth 19.72 *(31.73)* eighteenth 22.61 *(36.39)* reverse 2.81 *(4.53)*, 3.23 *(5.20)*, 6.56 *(10.55)*, 7.52 *(12.10)* **Clutch** multiple wet disc electrohydraulically operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 1994 engine rpm **Unladen tractor mass** 21630 lb *(9811 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)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
				5th Gear					
174.78 *(130.34)*	20820 *(92.61)*	3.15 *(5.07)*	2078	10.27	0.524 *(0.319)*	13.42 *(2.64)*	187 *(86)*	54 *(12)*	28.87 *(97.77)*
				6th Gear					
190.03 *(141.70)*	19792 *(88.04)*	3.60 *(5.79)*	2023	8.11	0.493 *(0.300)*	14.26 *(2.81)*	187 *(86)*	58 *(14)*	28.88 *(97.80)*
				7th Gear					
207.28 *(154.57)*	19081 *(84.88)*	4.07 *(6.56)*	1952	7.65	0.474 *(0.289)*	14.82 *(2.92)*	190 *(88)*	60 *(16)*	28.88 *(97.80)*
				8th Gear					
220.22 *(164.22)*	18892 *(84.04)*	4.37 *(7.03)*	1826	7.61	0.467 *(0.284)*	15.07 *(2.97)*	194 *(90)*	61 *(16)*	28.88 *(97.80)*
				9th Gear					
231.71 *(172.79)*	18511 *(82.34)*	4.69 *(7.55)*	1698	7.48	0.446 *(0.271)*	15.76 *(3.11)*	195 *(91)*	62 *(17)*	28.89 *(97.83)*
				10th Gear					
234.72 *(175.03)*	15986 *(71.11)*	5.51 *(8.86)*	1696	5.28	0.440 *(0.268)*	15.99 *(3.15)*	196 *(91)*	63 *(17)*	28.89 *(97.83)*
				11th Gear					
233.35 *(174.01)*	13705 *(60.96)*	6.38 *(10.28)*	1693	4.10	0.440 *(0.267)*	16.00 *(3.15)*	196 *(91)*	65 *(18)*	28.89 *(97.83)*
				12th Gear					
231.67 *(172.76)*	11811 *(52.54)*	7.36 *(11.84)*	1681	2.98	0.440 *(0.267)*	16.00 *(3.15)*	197 *(92)*	67 *(19)*	28.89 *(97.83)*
				13th Gear					
231.71 *(172.78)*	9332 *(41.51)*	9.31 *(14.98)*	1696	2.33	0.446 *(0.271)*	15.78 *(3.11)*	198 *(92)*	69 *(21)*	28.89 *(97.83)*

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At 75% load in 9th gear	72.0
Bystander in 18th gear	87.7

TIRES, BALLAST AND WEIGHT	With Ballast	Without Ballast
Rear Tires - No., size, ply & psi *(kPa)*	Four 520/85R42;**;13*(90)*	Two 520/85R42;**;17*(115)*
Ballast - Duals (total)	1950 lb *(885 kg)*	None
- Cast Iron (total)	6145 lb *(2787 kg)*	None
Front Tires - No., size, ply & psi *(kPa)*	Two 420/90R30;**;23*(160)*	Two 420/90R30;**;17*(115)*
Ballast - Liquid (total)	None	None
- Cast Iron (total)	1600 lb *(726 kg)*	None
Height of Drawbar	17.5 in *(445 mm)*	17.0 in *(430 mm)*
Static Weight with operator - Rear	20265 lb *(9192 kg)*	12805 lb *(5808 kg)*
- Front	11235 lb *(5096 kg)*	9000 lb *(4082 kg)*
- Total	31500 lb *(14288 kg)*	21805 lb *(9890 kg)*

REPAIRS AND ADJUSTMENTS: The hydraulic supply hose to front suspension control valve was replaced. The viscous fan hub was replaced previous to the unballasted drawbar tests.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests the fuel temperature at the injection pump inlet was maintained at 115°F *(46°C)*. This tractor did not meet the manufacturer's claim of 53.1 GPM *(201 lpm)* optional hydraulic flow. The pull in 3rd gear (ballasted tractor) was limited to avoid excessive tractor bouncing. The performance results on this summary were taken from OECD tests conducted under the Code II Test Code Procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1828**, Nebraska Summary 416, January 15, 2004.

Leonard L. Bashford
Director

M.F. Kocher
V.I. Adamchuk
W.P. Campbell
Board of Tractor Test Engineers

DRAWBAR PERFORMANCE

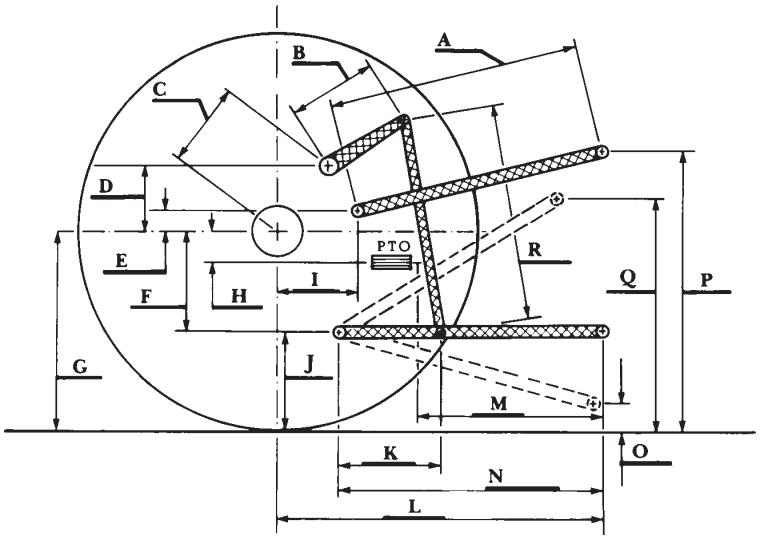
BALLASTED - 1700 ENGINE RPM

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)*
				3rd Gear					
184.07 *(137.26)*	30057 *(133.70)*	2.30 *(3.70)*	1994	9.91	0.512 *(0.311)*	13.74 *(2.71)*	185 *(85)*	62 *(17)*	28.78 *(97.46)*
				4th Gear					
202.66 *(151.12)*	28487 *(126.72)*	2.67 *(4.29)*	1966	7.45	0.483 *(0.293)*	14.58 *(2.87)*	193 *(90)*	64 *(18)*	28.82 *(97.60)*
				5th Gear					
212.51 *(158.47)*	27488 *(122.27)*	2.90 *(4.67)*	1857	7.19	0.487 *(0.296)*	14.44 *(2.84)*	197 *(92)*	65 *(18)*	28.82 *(97.60)*
				6th Gear					
222.29 *(165.76)*	25986 *(115.59)*	3.21 *(5.16)*	1762	5.65	0.465 *(0.283)*	15.13 *(2.98)*	196 *(91)*	69 *(21)*	28.83 *(97.63)*
				7th Gear					
235.01 *(175.25)*	24343 *(108.28)*	3.62 *(5.83)*	1692	4.92	0.444 *(0.270)*	15.86 *(3.12)*	198 *(92)*	70 *(21)*	28.83 *(97.63)*
				8th Gear					
236.98 *(176.72)*	21200 *(94.30)*	4.19 *(6.75)*	1686	3.69	0.438 *(0.267)*	16.04 *(3.16)*	198 *(92)*	72 *(22)*	28.82 *(97.60)*
				9th Gear					
235.71 *(175.77)*	18117 *(80.59)*	4.88 *(7.85)*	1686	2.79	0.442 *(0.269)*	15.92 *(3.14)*	199 *(93)*	76 *(24)*	28.82 *(97.60)*
				10th Gear					
236.16 *(176.11)*	15772 *(70.16)*	5.62 *(9.04)*	1688	2.62	0.436 *(0.265)*	16.13 *(3.18)*	199 *(93)*	74 *(23)*	28.82 *(97.60)*
				11th Gear					
233.41 *(174.05)*	13505 *(60.07)*	6.48 *(10.43)*	1690	2.10	0.443 *(0.270)*	15.87 *(3.13)*	200 *(93)*	75 *(24)*	28.82 *(97.60)*
				12th Gear					
229.67 *(171.27)*	11563 *(51.44)*	7.45 *(11.99)*	1689	1.84	0.450 *(0.274)*	15.64 *(3.08)*	200 *(93)*	66 *(19)*	28.82 *(97.60)*
				13th Gear					
226.20 *(168.67)*	9086 *(40.42)*	9.34 *(15.02)*	1690	1.35	0.460 *(0.280)*	15.30 *(3.01)*	200 *(93)*	68 *(20)*	28.82 *(97.60)*

THREE POINT HITCH PERFORMANCE(OECD Static Test)

CATEGORY: III		
Quick Attach: Yes		High Lift Option
Maximum force exerted through whole range:	16375 lb *(72.8 kN)*	17931 lb *(79.8 kN)*
i) Opening pressure of relief valve:	NA	NA
		High Flow Option
Sustained pressure at compensator cutoff:	3040 psi *(209 bar)*	3060 psi *(211 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	39.0 GPM *(147.6 l/min)*	52.4 GPM *(198.3 l/imn)*
iii) Pump delivery rate at maximum hydraulic power:	38.5 GPM *(145.7 l/min)*	46.6 GPM *(176.5 l/min)*
Delivery pressure:	2850 psi *(196 bar)*	2760 psi *(190 bar)*
Power:	63.9 HP *(47.7 kW)*	75.1 Hp *(56.0 kW)*



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	28.2	*718*
B	20.5	*520*
C	22.9	*581*
D	20.7	*525*
E	10.5	*266*
F	15.7	*400*
G	36.4	*925*
H	3.5	*90*
I	20.9	*530*
J	20.7	*525*
K	30.2	*768*
L	46.1	*1170*
*L'	50.7	*1287*
M	20.1	*511*
N	38.2	*970*
O	9.0	*230*
P	47.6	*1210*
Q	40.7	*1035*
R	39.2	*995*

*L' to Quick Attach ends

CASE IH MX 285 DIESEL

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