

# 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1003 rpm)</b>					
242.24 (180.64)	2000	13.60 (51.50)	0.395 (0.240)	17.81 (3.51)	
<b>Maximum Power (2 hours)</b>					
276.12 (205.90)	1700	14.73 (55.75)	0.375 (0.228)	18.75 (3.69)	
<b>VARYING POWER AND FUEL CONSUMPTION</b>					
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)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—7th Gear</b>									
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)
<b>75% of Pull at Maximum Power—7th Gear</b>									
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)
<b>50% of Pull at Maximum Power—7th Gear</b>									
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)
<b>75% of Pull at Reduced Engine Speed—9th Gear</b>									
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)
<b>50% of Pull at Reduced Engine Speed—9th Gear</b>									
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)	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)

**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 3<sup>rd</sup> 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

**TRACTOR SOUND LEVEL WITH CAB**

	<b>dB(A)</b>
At 75% load in 9th gear	72.0
Bystander in 18th gear	87.7

**TIRES, BALLAST AND WEIGHT**

	<b>With Ballast</b>	<b>Without Ballast</b>
<b>Rear Tires</b> -No., size, ply & psi (kPa)	Four 520/85R42;**,13(90)	Two 520/85R42;**,17(115)
<b>Ballast</b> - Duals (total)	1950 lb (885 kg)	None
- Cast Iron (total)	6145 lb (2787 kg)	None
<b>Front Tires</b> -No., size, ply & psi (kPa)	Two 420/90R30;**,23(160)	Two 420/90R30;**,17(115)
<b>Ballast</b> - Liquid (total)	None	None
- Cast Iron (total)	1600 lb (726 kg)	None
<b>Height of Drawbar</b>	17.5 in (445 mm)	17.0 in (430 mm)
<b>Static Weight with operator</b> - 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)

**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)	Consumption 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

Maximum force exerted through whole range: 16375 lb (72.8 kN) High Lift Option  
17931 lb (79.8 kN)

i) Opening pressure of relief valve: NA NA

Sustained pressure at compensator cutoff: 3040 psi (209 bar) High Flow Option  
3060 psi (211 bar)

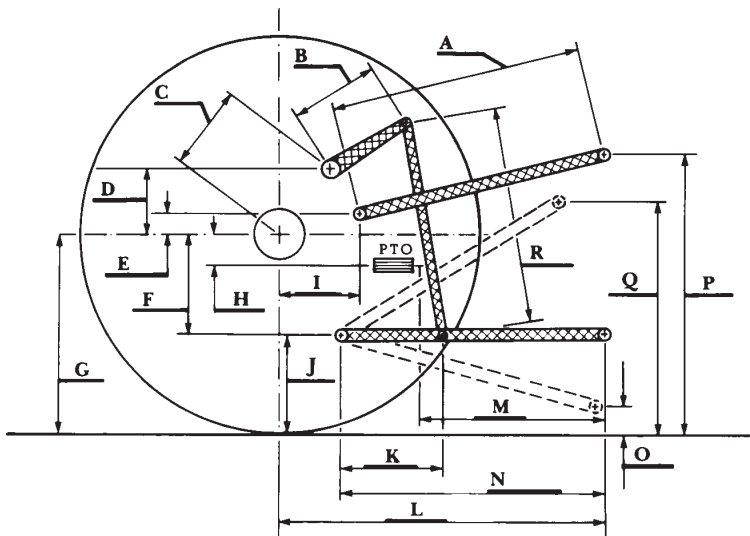
ii) Pump delivery rate at minimum pressure and rated engine speed: 39.0 GPM (147.6 l/min) 52.4 GPM (198.3 l/min)

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**

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