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Test 1825: Case IH MX 210 Diesel

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NEBRASKA OECD TRACTOR TEST 1825—SUMMARY 413

CASE IH MX 210 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)					
172.54 (128.67)	2000	10.81 (40.92)	0.441 (0.268)	15.96 (3.14)	
Maximum Power (2 hours)					
198.11 (147.73)	1700	11.03 (41.74)	0.391 (0.238)	17.97 (3.54)	

VARYING POWER AND FUEL CONSUMPTION					
172.54 (128.67)	2000	10.81 (40.92)	0.441 (0.268)	15.96 (3.14)	Air temperature
152.12 (113.44)	2078	9.81 (37.14)	0.454 (0.276)	15.51 (3.05)	78°F (25°C)
116.27 (86.70)	2121	8.06 (30.52)	0.488 (0.297)	14.42 (2.84)	Relative humidity
79.53 (59.31)	2169	6.40 (24.22)	0.566 (0.344)	12.43 (2.45)	46%
40.50 (30.20)	2205	4.73 (17.92)	0.822 (0.500)	8.55 (1.69)	Barometer
1.18 (0.88)	2242	3.20 (12.11)	19.116 (11.628)	0.37 (0.07)	28.57" Hg (96.75 kPa)

Maximum Torque - 692 lb.-ft. (939 Nm) at 1303 rpm
 Maximum Torque Rise - 53.4%
 Torque rise at 1598 engine rpm - 41%

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—7th Gear									
145.12 (108.21)	12473 (55.48)	4.36 (7.02)	2005	3.31	0.526 (0.320)	13.38 (2.64)	195 (90)	66 (19)	28.85 (97.69)
75% of Pull at Maximum Power—7th Gear									
114.19 (85.15)	9356 (41.62)	4.58 (7.37)	2079	2.20	0.567 (0.345)	12.40 (2.44)	194 (90)	72 (22)	28.84 (97.66)
50% of Pull at Maximum Power—7th Gear									
78.05 (58.20)	6243 (27.77)	4.69 (7.55)	2111	1.31	0.654 (0.398)	10.76 (2.12)	189 (87)	74 (23)	28.84 (97.66)
75% of Pull at Reduced Engine Speed—9th Gear									
114.40 (85.31)	9341 (41.55)	4.59 (7.39)	1577	2.18	0.479 (0.292)	14.68 (2.89)	186 (85)	74 (23)	28.84 (97.66)
50% of Pull at Reduced Engine Speed—9th Gear									
78.46 (58.50)	6239 (27.75)	4.72 (7.59)	1604	1.26	0.527 (0.321)	13.33 (2.63)	184 (85)	75 (24)	28.84 (97.66)

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

Dates of Test: September 26 - October 27, 2003

Manufacturer: CNH America LLC, 700 State St. 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: 25.5 hours

ENGINE: Make Consolidated Diesel Corporation Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** *46280635* **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: 73.0-80.5 lb/h (33.1 - 36.5 kg/h) **High idle:** 2195-2285 rpm **Turbo boost:** nominal 19.6-23.9 psi (135-165 kPa) as measured 20.6 psi (142 kPa)

CHASSIS: Type front wheel assist **Serial No.** *JAZ126785* **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** 540 rpm at 2000 engine rpm or 1000 rpm at 1994 engine rpm **Unladen tractor mass** 20195 lb (9160 kg)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED
MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crankshaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Temp.°F (°C)	Barom. inch Hg (kPa)		
4th Gear									
133.95 (99.89)	19579 (87.09)	2.57 (4.13)	1988	12.01	0.578 (0.351)	12.18 (2.40)	194 (90)	60 (16)	28.85 (97.70)
5th Gear									
144.01 (107.39)	18739 (83.35)	2.88 (4.64)	1906	10.09	0.545 (0.332)	12.89 (2.54)	193 (89)	62 (17)	28.86 (97.73)
6th Gear									
156.33 (116.58)	18091 (80.47)	3.24 (5.22)	1819	7.66	0.507 (0.308)	13.87 (2.73)	194 (90)	64 (18)	28.85 (97.70)
7th Gear									
163.54 (121.95)	16709 (74.33)	3.67 (5.91)	1727	5.57	0.484 (0.294)	14.54 (2.86)	196 (91)	67 (19)	28.85 (97.70)
8th Gear									
163.52 (121.94)	14619 (65.03)	4.19 (6.75)	1696	4.21	0.481 (0.293)	14.62 (2.88)	195 (90)	68 (20)	28.85 (97.70)
9th Gear									
163.98 (122.28)	12594 (56.02)	4.88 (7.86)	1694	3.18	0.474 (0.288)	14.84 (2.92)	195 (91)	69 (21)	28.87 (97.77)
10th Gear									
162.14 (120.91)	10800 (48.04)	5.63 (9.06)	1692	2.54	0.481 (0.292)	14.63 (2.88)	197 (91)	73 (23)	28.88 (97.80)
11th Gear									
160.71 (119.84)	9260 (41.19)	6.51 (10.47)	1697	2.08	0.488 (0.297)	14.40 (2.84)	198 (92)	75 (24)	28.89 (97.83)
12th Gear									
160.19 (119.46)	8125 (36.14)	7.39 (11.90)	1674	1.70	0.486 (0.295)	14.48 (2.85)	197 (92)	77 (25)	28.88 (97.80)
13th Gear									
160.26 (119.51)	6489 (28.86)	9.26 (14.91)	1675	1.20	0.492 (0.299)	14.29 (2.82)	197 (91)	78 (26)	28.87 (97.77)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

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 109°F (43°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. **1825**, Nebraska Summary 413, 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

dB(A)

At 75% load in 9th gear	71.4
Bystander in 18th gear	85.0

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires -No., size, ply & psi (kPa)	Four 520/85R42;**,9(60)	Two 520/85R42;**,15(105)
Ballast - Duals (total)	1950 lb (885 kg)	None
- Cast Iron (total)	None	None
Front Tires -No., size, ply & psi (kPa)	Two 420/90R30;**,15(105)	Two 420/90R30;**,13(90)
Ballast - Liquid (total)	None	None
- Cast Iron (total)	385 lb (175 kg)	None
Height of Drawbar	17.5 in (445 mm)	17.0 in (430 mm)
Static Weight with operator - Rear	14590 lb (6618 kg)	12705 lb(5762 kg)
- Front	8115 lb (3681 kg)	7665 lb(3477 kg)
- Total	22705 lb(10299 kg)	20370 lb(9239 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									
142.35 (106.15)	22922 (101.96)	2.33 (3.75)	1998	8.53	0.549 (0.334)	12.82 (2.53)	190 (88)	44 (7)	28.83 (97.63)
4th Gear									
151.45 (112.94)	21890 (97.37)	2.59 (4.18)	1901	6.62	0.518 (0.315)	13.59 (2.68)	192 (89)	52 (11)	28.84 (97.66)
5th Gear									
161.49 (120.42)	21589 (96.03)	2.81 (4.51)	1786	6.30	0.492 (0.299)	14.30 (2.82)	193 (90)	54 (12)	28.84 (97.66)
6th Gear									
164.48 (122.65)	19802 (88.08)	3.11 (5.01)	1700	4.74	0.476 (0.290)	14.77 (2.91)	194 (90)	56 (13)	28.84 (97.66)
7th Gear									
167.93 (125.22)	17115 (76.13)	3.68 (5.92)	1700	3.54	0.464 (0.282)	15.15 (2.98)	195 (91)	57 (14)	28.84 (97.66)
8th Gear									
168.23 (125.45)	14852 (66.06)	4.25 (6.84)	1700	2.92	0.464 (0.282)	15.15 (2.98)	196 (91)	59 (15)	28.85 (97.70)
9th Gear									
166.03 (123.81)	12694 (56.47)	4.90 (7.89)	1693	2.37	0.470 (0.286)	14.97 (2.93)	196 (91)	61 (16)	28.84 (97.66)
10th Gear									
163.67 (122.05)	10851 (48.27)	5.66 (9.10)	1696	2.03	0.475 (0.289)	14.82 (2.92)	195 (91)	63 (17)	28.83 (97.63)
11th Gear									
160.61 (119.77)	9266 (41.22)	6.50 (10.46)	1693	1.64	0.481 (0.293)	14.62 (2.88)	194 (90)	63 (17)	28.83 (97.63)
12th Gear									
159.43 (118.88)	7988 (35.53)	7.48 (12.05)	1694	1.38	0.486 (0.296)	14.46 (2.85)	196 (91)	64 (18)	28.83 (97.63)
13th Gear									
157.16 (117.19)	6316 (28.10)	9.33 (15.02)	1689	1.00	0.488 (0.297)	14.42 (2.84)	194 (90)	65 (18)	28.83 (97.63)

THREE POINT HITCH PERFORMANCE(OECD Static Test)

CATEGORY: III

Quick Attach: Yes

Maximum force exerted through whole range: 14070 lb (62.6 kN) High Lift Option
 16375 lb (72.8 kN)

i) Opening pressure of relief valve: NA High Flow Option

Sustained pressure at compensator cutoff: 3038 psi (209 bar) 3060 psi (211 bar)

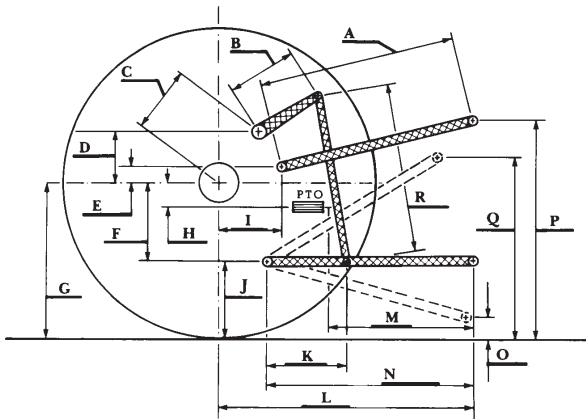
ii) Pump delivery rate at minimum pressure and rated engine speed: 38.6 GPM (146.1 l/min) 52.4 GPM (198.3 l/min)

iii) Pump delivery rate at maximum hydraulic power: 38.6 GPM (146.1 l/min) 46.6 GPM (176.5 l/min)

Delivery pressure: 2750 psi (190 bar) 2760 psi (190 bar)

Power: 62.0 HP (46.2 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 210 DIESEL

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