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## Test 1765: Case IH MX 200 Diesel

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# NEBRASKA OECD TRACTOR TEST 1765—SUMMARY 292

## CASE IH MX 200 DIESEL

### 18 SPEED

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

**Dates of Test:** October 21 - 26, 1999

**Manufacturer:** Case Corporation, 700 State St. Racine WI, USA

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.8512 Fuel weight 7.087 lbs/gal (0.849 kg/l) Oil SAE 15W-40 API service classification SF/CD/CE Transmission and hydraulic lubricant Case IH Hy-Tran Plus fluid Front axle lubricant SAE 85W-140 API GL-5 Total time engine was operated: 24.5 hours

**ENGINE:** Make Consolidated Diesel Corporation Diesel Type six cylinder vertical with turbocharger and air to air intercooler Serial No. 45821998 Crankshaft lengthwise Rated engine speed 2000 Bore and stroke 4.488" x 5.315" (114.0 mm x 135.0 mm) Compression ratio 16.5 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 Fuel cooler radiator for pump return fuel Muffler vertical Cooling medium temperature control 2 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: 65.9 - 76.9 lb/h (29.9 - 34.9 kg/h) High idle: 2195 - 2285 rpm Turbo boost: nominal 18.3 - 21.2 psi (126 - 146 kPa) as measured 18.3 psi (126 kPa)

**CHASSIS:** Type front wheel assist Serial No. \*X2004C4JJA0101159\* Treadwidth rear 60.0" (1524 mm) to 128.9" (3275 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) Wheelbase 118.3" (3006 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with full range operator controlled power shift Nominal travel speeds mph (km/h) first 1.86 (3.00) second 2.14 (3.44) third 2.46 (3.96) fourth 2.82 (4.54) fifth 3.24 (5.21) sixth 3.72 (5.98) seventh 4.34 (6.98) eighth 4.97 (8.00) ninth 5.74 (9.23) tenth 6.57 (10.58) eleventh 7.54 (12.14) twelfth 8.65 (13.92) thirteenth 10.78 (17.35) fourteenth 12.37 (19.90) fifteenth 14.27 (22.96) sixteenth 16.35 (26.32) seventeenth 18.77 (30.20) eighteenth 21.53 (34.65) reverse 2.68 (4.31), 3.08 (4.95), 6.24 (10.04), 7.16 (11.52) Clutch multiple wet disc electrohydraulically actuated 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 1982 engine rpm and 1000 rpm at 1974 engine rpm Unladen tractor mass 19660 lb (8918 kg)

#### 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—1013 rpm)</b>					
165.75 (123.60)	2000	9.43 (35.71)	0.403 (0.245)	17.57 (3.46)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
170.84 (127.39)	1973	9.58 (36.27)	0.398 (0.242)	17.83 (3.51)	
<b>Maximum Power (2 hours)</b>					
193.16 (131.00)	1700	9.96 (37.69)	0.365 (0.222)	19.40 (3.82)	

#### VARYING POWER AND FUEL CONSUMPTION

165.75 (123.60)	2000	9.43 (35.71)	0.403 (0.245)	17.57 (3.46)	Air temperature
148.44 (110.69)	2108	9.02 (34.13)	0.430 (0.262)	16.46 (2.87)	75°F (24°C)
112.95 (84.23)	2141	7.49 (28.36)	0.470 (0.286)	15.07 (2.61)	Relative humidity
76.45 (57.01)	2170	6.01 (22.75)	0.557 (0.339)	12.72 (2.19)	40%
38.57 (28.76)	2196	4.53 (17.15)	0.832 (0.506)	8.52 (1.68)	Barometer
1.07 (0.80)	2223	3.13 (11.86)	20.710 (12.597)	0.34 (0.07)	29.16" Hg (98.75 kPa)

Maximum Torque - 660 lb.-ft. (894 Nm) at 1450 rpm

Maximum Torque Rise - 51.5%

Torque rise at 1600 engine rpm - 43%

#### 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—8th Gear</b>									
142.33 (106.14)	10812 (48.09)	4.94 (7.94)	1999	2.80	0.474 (0.289)	14.94 (2.94)	183 (84)	52 (11)	28.96 (98.07)
<b>75% of Pull at Maximum Power—8th Gear</b>									
114.03 (85.03)	8105 (36.05)	5.28 (8.49)	2122	2.10	0.530 (0.322)	13.37 (2.63)	185 (85)	70 (21)	29.01 (98.24)
<b>50% of Pull at Maximum Power—8th Gear</b>									
77.62 (57.88)	5399 (24.01)	5.39 (8.68)	2153	1.48	0.624 (0.379)	11.37 (2.24)	182 (83)	73 (23)	29.02 (98.27)
<b>75% of Pull at Reduced Engine Speed—10th Gear</b>									
114.03 (85.03)	8099 (36.03)	5.28 (8.50)	1605	2.01	0.455 (0.277)	15.59 (3.07)	185 (85)	72 (22)	29.02 (98.27)
<b>50% of Pull at Reduced Engine Speed—10th Gear</b>									
77.55 (57.83)	5403 (24.03)	5.38 (8.66)	1624	1.48	0.509 (0.310)	13.91 (2.74)	179 (82)	75 (24)	29.02 (98.27)

**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)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
3rd Gear									
118.09 (88.06)	19863 (88.35)	2.23 (3.59)	2066	14.16	0.552 (0.336)	12.83 (2.53)	178 (81)	53 (12)	28.99 (96.34)
4th Gear									
133.66 (99.67)	19058 (84.77)	2.63 (4.23)	2005	8.95	0.503 (0.306)	14.09 (2.78)	181 (83)	58 (14)	29.01 (98.24)
5th Gear									
144.36 (107.65)	18377 (81.74)	2.95 (4.74)	1929	7.64	0.482 (0.293)	14.71 (2.90)	183 (84)	61 (16)	29.00 (98.21)
6th Gear									
151.57 (113.02)	17777 (79.07)	3.20 (5.15)	1812	6.94	0.463 (0.282)	15.30 (3.01)	186 (85)	65 (18)	28.99 (98.17)
7th Gear									
161.40 (120.36)	17062 (75.89)	3.55 (5.71)	1702	5.97	0.439 (0.267)	16.16 (3.18)	186 (86)	59 (15)	28.99 (98.17)
8th Gear									
163.79 (122.14)	14860 (66.10)	4.13 (6.65)	1701	4.41	0.432 (0.263)	16.42 (3.23)	186 (85)	54 (12)	28.97 (98.10)
9th Gear									
164.83 (122.92)	12884 (57.31)	4.80 (7.72)	1698	3.57	0.429 (0.261)	16.53 (3.26)	186 (86)	55 (13)	28.98 (98.14)
10th Gear									
163.73 (122.09)	11098 (49.36)	5.53 (8.90)	1699	3.06	0.434 (0.264)	16.35 (3.22)	188 (87)	62 (17)	28.99 (98.17)
11th Gear									
161.58 (120.49)	9478 (42.16)	6.39 (10.29)	1702	2.62	0.437 (0.266)	16.23 (3.20)	188 (87)	64 (18)	28.99 (98.17)
12th Gear									
160.42 (119.63)	8177 (36.37)	7.36 (11.84)	1700	2.19	0.441 (0.268)	16.08 (3.17)	189 (87)	66 (19)	28.99 (98.17)
13th Gear									
156.59 (116.77)	6371 (28.34)	9.22 (14.83)	1701	1.57	0.454 (0.276)	15.62 (3.08)	189 (87)	67 (19)	28.99 (98.17)

**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 return was maintained at 141°F(61°C). This tractor did not meet the manufacturer's claims of 44.0 GPM(166 lpm) hydraulic flow(high flow option) nor cab sound level of 72.0 dB(A). The pull in 3<sup>rd</sup> gear(ballasted tractor) was limited to avoid excessive tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1765**, Nebraska Summary 292, December 13, 1999.

Brent T. Sampson  
 Test Engineer

L.L. Bashford  
 M.F. Kocher  
 R.D. Grisso Jr.  
 Board of Tractor Test Engineers

**TRACTOR SOUND LEVEL WITH CAB**

**dB(A)**

At 75% load in 9th gear	73.5
Bystander	--

**TIRES, BALLAST AND WEIGHT**

	With Ballast	Without Ballast
<b>Rear Tires</b> - No., size, ply & psi(kPa)	Four 18.4R42;**,11(75)	Two 18.4R42;**,22(150)
<b>Ballast</b> - Duals (total)	1545 lb (701 kg)	None
- Test Equip (total)	325 lb (147 kg)	None
<b>Front Tires</b> - No., size, ply & psi(kPa)	Two 14.9R30;***,24(165)	Two 14.9R30;***,22(150)
<b>Ballast</b> - Liquid (total)	None	None
- Cast Iron (total)	430 lb (195 kg)	None
<b>Height of Drawbar</b>	16.5 in (420 mm)	16.5 in (420 mm)
<b>Static Weight with operator</b> - Rear	14290 lb (6482 kg)	12450 lb(5647 kg)
- Front	7850 lb (3560 kg)	7390 lb(3352 kg)
- Total	22140 lb(10042 kg)	19840 lb(8999 kg)

**DRAWBAR PERFORMANCE**  
**BALLASTED - 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 dry bulb	Barom. inch Hg (kPa)	
3rd Gear									
134.30 (100.14)	22612 (100.58)	2.23 (3.58)	1986	10.58	0.509 (0.309)	13.93 (2.74)	182 (83)	52 (11)	29.10 (98.54)
4th Gear									
147.92 (110.31)	21869 (97.28)	2.54 (4.08)	1905	7.65	0.475 (0.289)	14.91 (2.94)	182 (83)	57 (14)	29.09 (98.51)
5th Gear									
155.72 (116.12)	21308 (94.78)	2.74 (4.41)	1774	6.54	0.453 (0.276)	15.63 (3.08)	185 (85)	58 (14)	29.09 (98.51)
6th Gear									
161.22 (120.22)	19716 (87.70)	3.07 (4.93)	1702	5.00	0.440 (0.268)	16.11 (3.17)	186 (86)	58 (14)	29.08 (98.48)
7th Gear									
164.58 (122.73)	17069 (75.92)	3.62 (5.82)	1699	3.75	0.430 (0.262)	16.47 (3.24)	188 (86)	54 (12)	29.08 (98.48)
8th Gear									
165.43 (123.36)	14835 (65.99)	4.18 (6.73)	1703	3.16	0.430 (0.261)	16.49 (3.25)	187 (86)	60 (16)	29.07 (98.44)
9th Gear									
164.66 (122.78)	12756 (56.74)	4.84 (7.79)	1701	2.55	0.432 (0.262)	16.42 (3.24)	188 (87)	61 (16)	29.07 (98.44)
10th Gear									
163.94 (122.25)	11025 (49.04)	5.58 (8.97)	1703	2.29	0.433 (0.263)	16.37 (3.23)	187 (86)	62 (17)	29.07 (98.44)
11th Gear									
162.02 (120.82)	9478 (42.16)	6.41 (10.32)	1701	2.12	0.437 (0.266)	16.23 (3.20)	188 (86)	62 (17)	29.06 (98.40)
12th Gear									
160.24 (119.49)	8154 (36.27)	7.37 (11.86)	1700	1.94	0.442 (0.269)	16.04 (3.16)	187 (86)	63 (17)	29.06 (98.40)
13th Gear									
155.98 (116.32)	6362 (28.30)	9.19 (14.80)	1697	1.41	0.454 (0.276)	15.60 (3.07)	189 (87)	64 (18)	29.06 (98.40)

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

CATEGORY: III

Quick Attach: No

Maximum Force Exerted Through Whole Range: 11394 lbs (50.7 kN) High lift option 14712 lbs (65.4 kN)

i) Opening pressure of relief valve: NA NA

High flow option

Sustained pressure at compensator cutoff: 2910 psi (201 bar) 2970 psi (205 bar)

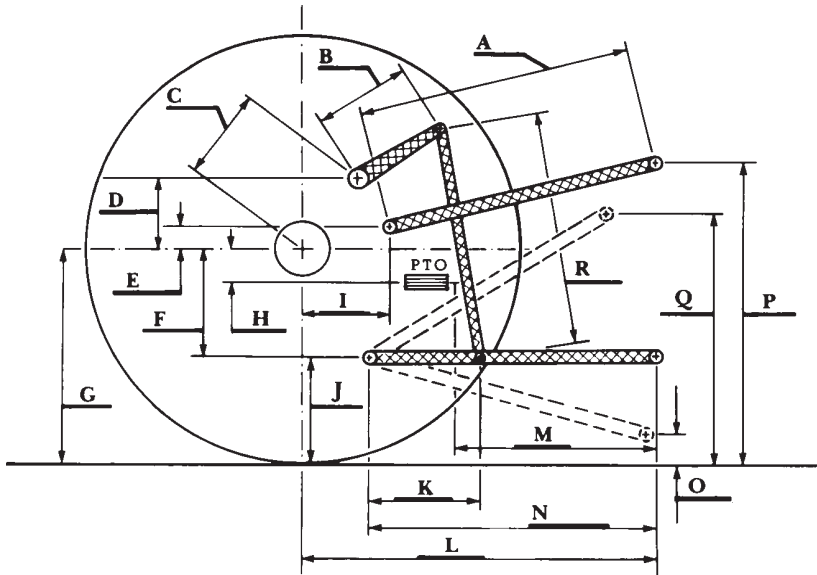
ii) Pump delivery rate at minimum pressure and rated engine speed: 31.2 GPM(118.1 l/min) 43.3 GPM (163.9 l/min)

iii) Pump delivery rate at maximum hydraulic power: 29.6 GPM(112.0 l/min) 40.3 GPM (152.6 l/min)

Delivery pressure: 2600 psi (179 bar) 2700 psi (186 bar)

Power: 44.9 HP (33.5 kW) 63.5 HP (47.3 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	25.2	640
B	20.5	520
C	22.9	581
D	20.7	525
E	8.7	220
F	15.7	400
G	37.6	955
H	3.5	90
I	20.9	531
J	21.9	555
K	30.3	770
L	46.1	1170
*L'	50.7	1287
M	20.0	507
N	38.2	970
O	8.0	203
P	48.8	1240
Q	37.6	955
R	41.3	1050

\*L' to Quick Attach ends



CASE IH MX 200 DIESEL

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