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## Test 1760: Case IH MX 240 Diesel

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# NEBRASKA OECD TRACTOR TEST 1760—SUMMARY 274

## CASE IH MX 240 DIESEL

### 18 SPEED

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

**Dates of Test:** April 13 - 24, 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. \*45783518\* 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: 75.2 - 84.7 lb/h (34.1 - 38.4 kg/h) High idle: 2025-2065 rpm Turbo boost: nominal 21.5-24.4 psi (148 - 168 kPa) as measured 22.0 psi (152 kPa)

**CHASSIS:** Type front wheel assist Serial No. \*X2404C4JJA0099643\* Treadwidth rear 64.0" (1626 mm) to 130.9" (3325 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 1.94 (3.12) second 2.22 (3.57) third 2.56 (4.12) fourth 2.94 (4.73) fifth 3.37 (5.42) sixth 3.87 (6.22) seventh 4.51 (7.26) eighth 5.17 (8.32) ninth 5.97 (9.60) tenth 6.84 (11.01) eleventh 7.85 (12.63) twelfth 9.00 (14.48) thirteenth 11.22 (18.05) fourteenth 12.86 (20.70) fifteenth 14.84 (23.88) sixteenth 17.02 (27.39) seventeenth 19.52 (31.41) eighteenth 22.39 (36.04) reverse 2.79 (4.49), 3.19 (5.14), 6.49 (10.44), 7.44 (11.98) 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 1000 rpm at 1974 engine rpm Unladen tractor mass 20745 lb (9410 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—1012 rpm)</b>					
206.72 (154.15)	1997	11.60 (43.90)	0.398 (0.242)	17.83 (3.51)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
213.36 (159.10)	1973	11.80 (44.66)	0.392 (0.238)	18.08 (3.56)	
<b>Maximum Power (2 hours)</b>					
235.15 (175.35)	1800	12.67 (47.97)	0.382 (0.232)	18.56 (3.66)	

#### VARYING POWER AND FUEL CONSUMPTION

206.72 (154.15)	1997	11.60 (43.90)	0.398 (0.242)	17.83 (3.51)	Air temperature
178.24 (132.89)	2025	10.50 (39.74)	0.411 (0.254)	16.98 (3.34)	75°F (24°C)
134.01 (99.93)	2031	8.42 (31.89)	0.445 (0.271)	15.91 (3.13)	Relative humidity
89.51 (66.75)	2035	6.35 (24.04)	0.503 (0.306)	14.10 (2.78)	58%
44.85 (33.44)	2037	4.32 (16.34)	0.682 (0.415)	10.39 (2.05)	Barometer
0.98 (0.73)	2040	2.33 (8.81)	16.762 (10.196)	0.42 (0.08)	28.88" Hg (97.80 kPa)

Maximum Torque - 810 lb.-ft. (1098 Nm) at 1102 rpm

Maximum Torque Rise - 48.8%

Torque rise at 1600 engine rpm - 36%

#### 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>									
178.57 (133.16)	15180 (67.52)	4.41 (7.10)	1996	4.06	0.462 (0.281)	15.35 (3.02)	188 (87)	64 (18)	28.42 (96.24)
<b>75% of Pull at Maximum Power—7th Gear</b>									
138.22 (103.07)	11408 (50.74)	4.54 (7.31)	2028	2.73	0.493 (0.300)	14.38 (2.83)	185 (85)	65 (18)	28.38 (96.11)
<b>50% of Pull at Maximum Power—7th Gear</b>									
93.15 (69.47)	7598 (33.80)	4.60 (7.40)	2031	1.73	0.560 (0.341)	12.65 (2.49)	182 (83)	66 (19)	28.38 (96.11)
<b>75% of Pull at Reduced Engine Speed—9th Gear</b>									
138.16 (103.02)	11399 (50.70)	4.55 (7.31)	1534	2.82	0.450 (0.274)	15.75 (3.10)	185 (85)	65 (18)	28.38 (96.11)
<b>50% of Pull at Reduced Engine Speed—9th Gear</b>									
93.22 (69.52)	7582 (33.73)	4.61 (7.42)	1539	1.73	0.499 (0.303)	14.21 (2.80)	182 (83)	67 (19)	28.37 (96.07)

**DRAWBAR PERFORMANCE (UNBALLASTED)  
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)
5th Gear									
167.71 (125.06)	20928 (93.09)	3.01 (4.84)	1960	10.97	0.498 (0.303)	14.24 (2.81)	184 (84)	62 (17)	28.45 (96.34)
6th Gear									
180.91 (134.90)	20115 (89.47)	3.37 (5.43)	1865	8.40	0.478 (0.291)	14.81 (2.92)	189 (87)	63 (17)	28.43 (96.28)
7th Gear									
195.77 (145.99)	19005 (84.54)	3.86 (6.22)	1799	6.78	0.457 (0.278)	15.50 (3.05)	191 (88)	65 (18)	28.41 (96.21)
8th Gear									
199.06 (148.44)	16504 (73.41)	4.52 (7.28)	1797	4.67	0.449 (0.273)	15.79 (3.11)	191 (88)	65 (18)	28.41 (96.21)
9th Gear									
200.56 (149.56)	14219 (63.25)	5.29 (8.51)	1802	3.71	0.446 (0.271)	15.90 (3.13)	191 (88)	65 (18)	28.41 (96.21)
10th Gear									
199.47 (148.74)	12236 (54.43)	6.11 (9.84)	1803	3.00	0.448 (0.273)	15.81 (3.11)	193 (89)	65 (18)	28.40 (96.17)
11th Gear									
197.93 (147.60)	10554 (46.94)	7.03 (11.32)	1799	2.46	0.450 (0.274)	15.74 (3.10)	193 (89)	65 (18)	28.39 (96.14)
12th Gear									
195.44 (145.74)	9060 (40.30)	8.09 (13.02)	1797	2.00	0.459 (0.279)	15.44 (3.04)	194 (90)	65 (18)	28.38 (96.11)

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At 75% load in 9th gear	71.7
Bystander	--

**TIRES, BALLAST AND WEIGHT**

	With Ballast	Without Ballast
<b>Rear Tires</b> - No., size, ply & psi(kPa)	Four 20.8R42;**,12(85)	Two 20.8R42;**,18(125)
<b>Ballast</b> - Duals (total)	1890 lb (857 kg)	None
- Cast Iron (total)	2960 lb (1343 kg)	None
<b>Front Tires</b> - No., size, ply & psi(kPa)	Two 16.9R30;***,24(165)	Two 16.9R30;***,18(125)
<b>Ballast</b> - Liquid (total)	None	None
- Cast Iron (total)	1130 lb (513 kg)	None
<b>Height of Drawbar</b>	15.5 in (395 mm)	15.5 in (395 mm)
<b>Static Weight with operator</b> - Rear	17180 lb (7793 kg)	12640 lb(5733 kg)
- Front	9720 lb (4409 kg)	8280 lb(3756 kg)
- Total	26900 lb(12202 kg)	20920 lb(9489 kg)

**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 188°F(87°C).This tractor did not meet the manufacturer's claim of 44.0 GPM (166 lpm) hydraulic flow. 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. **1760**, Nebraska Summary 274, May 10, 1999.

Leonard L. Bashford  
Director

M.F. Kocher  
R.D. Grisso  
G.J. Hoffman  
Board of Tractor Test Engineers

## DRAWBAR PERFORMANCE (BALLASTED)

### 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									
169.68 (126.53)	26914 (119.72)	2.36 (3.80)	1979	8.86	0.486 (0.295)	14.60 (2.88)	184 (84)	65 (18)	28.94 (98.00)
4th Gear									
181.14 (135.08)	25787 (114.71)	2.63 (4.24)	1893	7.18	0.473 (0.288)	14.98 (2.95)	186 (86)	66 (19)	28.94 (98.00)
5th Gear									
193.71 (144.45)	24728 (109.99)	2.94 (4.73)	1817	5.85	0.461 (0.281)	15.37 (3.03)	186 (85)	66 (19)	28.94 (98.00)
6th Gear									
196.56 (146.58)	21685 (96.46)	3.40 (5.47)	1799	4.14	0.455 (0.277)	15.59 (3.07)	191 (88)	66 (19)	28.94 (98.00)
7th Gear									
203.94 (152.08)	19096 (84.94)	4.01 (6.45)	1800	3.26	0.439 (0.267)	16.16 (3.18)	191 (88)	66 (19)	28.93 (97.97)
8th Gear									
202.70 (151.15)	16455 (73.20)	4.62 (7.43)	1800	2.63	0.442 (0.269)	16.05 (3.16)	194 (90)	68 (20)	28.93 (97.97)
9th Gear									
202.12 (150.72)	14158 (62.98)	5.35 (8.62)	1800	2.27	0.443 (0.270)	15.99 (3.15)	193 (89)	69 (21)	28.94 (98.00)
10th Gear									
200.81 (149.75)	12215 (54.33)	6.17 (9.92)	1800	2.00	0.444 (0.270)	15.96 (3.14)	194 (90)	69 (21)	28.93 (97.97)
11th Gear									
200.27 (149.34)	10650 (47.37)	7.05 (11.35)	1790	1.72	0.446 (0.271)	15.88 (3.13)	194 (90)	69 (21)	28.93 (97.97)
12th Gear									
196.72 (146.70)	9043 (40.23)	8.16 (13.13)	1800	1.36	0.455 (0.277)	15.56 (3.07)	194 (90)	70 (21)	28.94 (98.00)

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

CATEGORY: III

Quick Attach: Yes

Maximum Force Exerted Through Whole Range: 13113 lbs (58.3 kN) High lift option 16229 lb (72.2 kN)

i) Opening pressure of relief valve: NA NA

High flow option

Sustained pressure at compensator cutoff: 2920 psi (201 bar) 2970 psi (205 bar)

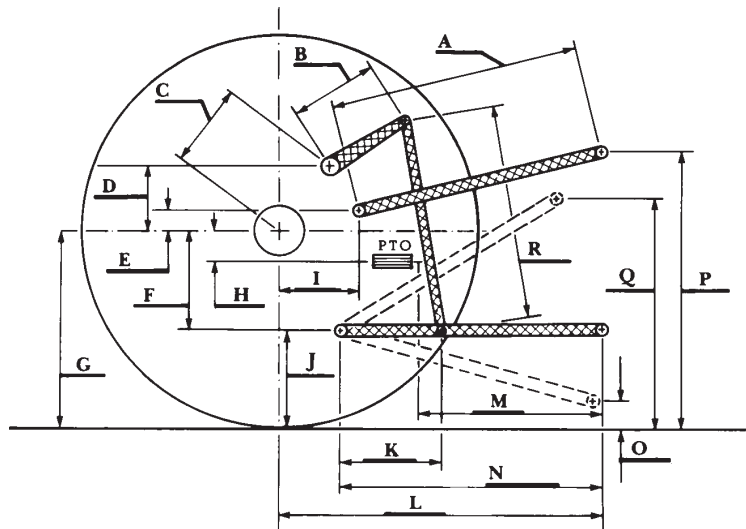
ii) Pump delivery rate at minimum pressure and rated engine speed: 31.1 GPM(117.7 l/min) 43.3 GPM (163.9 l/min)

iii) Pump delivery rate at maximum hydraulic power: 28.7 GPM(108.6 l/min) 40.3 GPM (152.6 l/min)

Delivery pressure: 2750 psi (190 bar) 2700 psi (186 bar)

Power: 46.0 HP (34.3 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 Attack ends



CASE IH MX 240 DIESEL