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2011

Test 2006: Case IH Magnum 340

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 2006—SUMMARY 789

CASE IH MAGNUM 340 DIESEL

18 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	D.E.F. Consumption Gal/hr (l/h)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1110 rpm)						
295.02 (220.00)	2000	15.33 (58.05)	0.366 (0.223)	19.24 (3.79)	1.32 (4.98)	
Standard Power Take-off Speed (1000 rpm)						
331.45 (247.16)	1804	16.58 (62.76)	0.352 (0.214)	19.99 (3.94)	1.36 (5.15)	
Maximum Power (1 hour)						
337.37 (251.58)	1650	16.75 (63.42)	0.350 (0.213)	20.14 (3.97)	1.29 (4.88)	

VARYING POWER AND FUEL CONSUMPTION

295.02 (220.00)	2000	15.33 (58.05)	0.366 (0.223)	19.24 (3.79)	1.32 (4.98)	Air temperature
262.39 (195.67)	2088	13.98 (52.93)	0.376 (0.228)	18.77 (3.70)	1.09 (4.14)	74°F (23°C)
199.51 (148.77)	2118	11.34 (42.94)	0.401 (0.244)	17.59 (3.46)	0.85 (3.20)	Relative humidity
134.81 (100.53)	2152	8.28 (31.34)	0.433 (0.263)	16.28 (3.21)	0.59 (2.25)	18%
68.48 (51.07)	2183	5.57 (21.07)	0.573 (0.348)	12.30 (2.42)	0.33 (1.26)	Barometer
4.44 (3.31)	2214	3.01 (11.38)	4.768 (2.900)	1.48 (0.29)	0.01 (0.02)	28.90" Hg (97.87 kPa)

Maximum torque - 1128 lb.-ft. (1530 Nm) at 1500 rpm

Maximum torque rise - 45.7%

Torque rise at 1600 engine rpm - 41%

Power increase at 1650 engine rpm - 14.4%

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—8th Gear									
256.51 (191.28)	19205 (85.43)	5.01 (8.06)	2000	2.9	0.423 (0.257)	16.66 (3.28)	194 (90)	59 (15)	28.91 (97.90)
75% of Pull at Maximum Power—8th Gear									
205.66 (153.36)	14500 (64.50)	5.32 (8.56)	2098	1.8	0.451 (0.274)	15.63 (3.08)	193 (89)	77 (25)	28.79 (97.49)
50% of Pull at Maximum Power—8th Gear									
141.01 (105.15)	9677 (43.04)	5.47 (8.80)	2139	1.1	0.503 (0.306)	14.01 (2.76)	195 (90)	77 (25)	28.78 (97.46)
75% of Pull at Reduced Engine Speed—11th Gear									
204.86 (152.76)	14493 (64.47)	5.30 (8.53)	1379	1.8	0.405 (0.247)	17.39 (3.42)	197 (91)	78 (25)	28.76 (97.39)
50% of Pull at Reduced Engine Speed—11th Gear									
140.92 (105.08)	9653 (42.94)	5.48 (8.81)	1413	1.1	0.438 (0.266)	16.09 (3.17)	190 (88)	77 (25)	28.77 (97.43)

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

Dates of tests: October 20-27, 2011

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

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8463 **Fuel weight** 7.047 lbs/gal (0.845 kg/l) **Diesel Exhaust Fluid (DEF)** 30% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil SAE 15W40 API service classification** CI-4 **Transmission and hydraulic lubricant** Case IH Hy-Tran Ultra fluid **Front axle lubricant** SAE 85W-140 API GL-5 **Total time engine was operated:** 20.0 hours

ENGINE: Make F.P.T. Diesel **Type** six cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment. **Serial No.** *11H00011507* **Crankshaft** lengthwise **Rated engine speed** 2000 **Bore and stroke** 4.606" x 5.315" (117.0 mm x 135.0 mm) **Compression ratio** 15.9 to 1 **Displacement** 531 cu in (8704 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: 108.0 - 114.7 lb/h (49.0 - 52.0 kg/h) **High idle:** 2200-2250 rpm **Turbo boost:** nominal 23.2 - 27.6 psi (160 - 190 kPa) as measured 25.8 psi (178 kPa)

CHASSIS: Type front wheel assist with duals **Serial No.** *ZBRD05271* **Tread width** rear 64.0" (1626 mm) to 129.0" (3277 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) **Wheelbase** 120.3" (3055 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 1808 engine rpm or 1000 rpm at 1803 engine rpm **Unladen tractor mass** 26510 lb (12025 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)	Temp. °F (°C)	Air dry bulb	Barom. inch Hg (kPa)	
5th Gear									
219.34 (163.56)	26214 (116.60)	3.14 (5.05)	2079	10.2	0.481 (0.293)	14.64 (2.88)	192 (89)	61 (16)	28.91 (97.90)
6th Gear									
238.98 (178.20)	25418 (113.06)	3.53 (5.68)	2002	8.6	0.456 (0.277)	15.46 (3.05)	189 (87)	53 (12)	28.91 (97.90)
7th Gear									
255.32 (190.39)	22308 (99.23)	4.30 (6.91)	2000	4.6	0.430 (0.262)	16.39 (3.23)	187 (86)	55 (13)	28.91 (97.90)
8th Gear									
256.51 (191.28)	19205 (85.43)	5.01 (8.06)	2000	2.9	0.423 (0.257)	16.66 (3.28)	194 (90)	59 (15)	28.91 (97.90)
9th Gear									
255.21 (190.31)	16467 (73.25)	5.81 (9.35)	2000	2.3	0.424 (0.258)	16.61 (3.27)	196 (91)	63 (17)	28.90 (97.87)
10th Gear									
252.96 (188.63)	14164 (63.00)	6.70 (10.78)	1999	1.9	0.430 (0.262)	16.39 (3.23)	204 (96)	67 (20)	28.89 (97.83)
11th Gear									
249.86 (186.32)	12151 (54.05)	7.72 (12.42)	2000	1.5	0.436 (0.265)	16.17 (3.19)	203 (95)	69 (21)	28.88 (97.80)
12th Gear									
245.56 (183.11)	10385 (46.19)	8.87 (14.27)	2000	1.2	0.445 (0.270)	15.85 (3.12)	201 (94)	71 (22)	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 primary fuel filter was maintained at 104°F (40°C). The manufacturer's 3 point hitch lift claim of 17400 lbs (7892 kg), with 105 mm lift cylinders, was not verified. The performance results on this summary were taken from OECD tests conducted under the Code 2 Test Code Procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2006**, Nebraska Summary 789, January 19, 2012.

Roger M. Hoy
Director

M.F. Kocher
D.R. Keshwani
P.J. Jasa
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th gear	67.7	67.6
Bystander in 18th gear		86.8

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires -No., size, ply & psi (kPa)	Six 520/85R42;**,10(70)	Four 520/85R42;**,9(60)
Ballast - Triples (total)	2320 lb (1052 kg)	None
- Cast Iron (total)	4855 lb (2202 kg)	None
Front Tires -No., size, ply & psi (kPa)	Four 420/90R30;**,16(110)	Two 420/90R30;**,20(140)
Ballast - Duals (total)	1140 lb (517 kg)	None
- Cast Iron (total)	2160 lb (980 kg)	None
Height of Drawbar	20.5 in (520 mm)	20.0 in (510 mm)
Static Weight with operator - Rear	22140 lb(10042 kg)	16075 lb (7291 kg)
- Front	15020 lb (6813 kg)	10610 lb (4813 kg)
- Total	37160 lb(16855 kg)	26685 lb(12104 kg)

DRAWBAR PERFORMANCE AT 1650 ENGINE RPM
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)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
5th Gear									
220.27 (164.26)	26239 (116.71)	3.15 (5.07)	2079	10.0	0.478 (0.291)	14.73 (2.90)	188 (87)	60 (15)	28.91 (97.90)
6th Gear									
239.71 (178.75)	25509 (113.47)	3.53 (5.67)	2004	8.8	0.460 (0.280)	15.33 (3.02)	188 (86)	51 (11)	28.91 (97.90)
7th Gear									
262.25 (195.56)	24561 (109.25)	4.01 (6.45)	1909	6.7	0.431 (0.262)	16.35 (3.22)	192 (89)	55 (13)	28.91 (97.90)
8th Gear									
281.90 (210.21)	24100 (107.20)	4.39 (7.07)	1808	5.9	0.416 (0.253)	16.95 (3.34)	200 (93)	60 (15)	28.90 (97.87)
9th Gear									
288.43 (215.08)	23202 (103.21)	4.67 (7.51)	1650	5.1	0.414 (0.252)	17.03 (3.35)	211 (99)	65 (18)	28.90 (97.87)
10th Gear									
293.27 (218.69)	20179 (89.76)	5.45 (8.77)	1651	3.2	0.405 (0.247)	17.39 (3.42)	213 (100)	69 (21)	28.89 (97.83)
11th Gear									
293.26 (218.68)	17454 (77.64)	6.30 (10.14)	1650	2.4	0.407 (0.247)	17.33 (3.41)	213 (100)	71 (22)	28.88 (97.80)
12th Gear									
290.91 (216.93)	15048 (66.94)	7.25 (11.67)	1649	2.0	0.408 (0.248)	17.28 (3.40)	213 (101)	72 (22)	28.87 (97.77)
13th Gear									
285.57 (212.95)	11778 (52.39)	9.09 (14.63)	1650	1.4	0.415 (0.252)	16.99 (3.35)	219 (104)	73 (23)	28.86 (97.73)

DRAWBAR PERFORMANCE AT 1650 ENGINE RPM
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)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
3rd Gear									
231.68 (172.76)	37317 (165.99)	2.33 (3.75)	2070	11.9	0.480 (0.292)	14.70 (2.90)	191 (88)	48 (9)	28.99 (98.17)
4th Gear									
248.26 (185.12)	36085 (160.51)	2.58 (4.15)	1932	8.8	0.448 (0.273)	15.72 (3.10)	192 (89)	48 (9)	29.00 (98.21)
5th Gear									
267.36 (199.37)	35134 (156.28)	2.85 (4.59)	1835	7.4	0.432 (0.263)	16.30 (3.21)	194 (90)	48 (9)	29.00 (98.21)
6th Gear									
278.39 (207.60)	33218 (147.76)	3.14 (5.05)	1737	6.1	0.424 (0.258)	16.62 (3.27)	197 (91)	48 (9)	29.01 (98.24)
7th Gear									
289.23 (215.68)	30715 (136.62)	3.53 (5.68)	1650	4.6	0.412 (0.251)	17.09 (3.37)	198 (92)	49 (9)	29.01 (98.24)
8th Gear									
292.01 (217.75)	26619 (118.41)	4.11 (6.61)	1650	3.4	0.408 (0.248)	17.27 (3.40)	201 (94)	49 (9)	29.00 (98.21)
9th Gear									
292.45 (218.08)	22921 (101.96)	4.78 (7.69)	1651	2.4	0.405 (0.246)	17.40 (3.43)	199 (93)	49 (10)	29.00 (98.21)
10th Gear									
289.70 (216.03)	19713 (87.69)	5.51 (8.87)	1651	2.1	0.409 (0.249)	17.24 (3.40)	203 (95)	50 (10)	29.00 (98.21)
11th Gear									
288.08 (214.82)	17045 (75.82)	6.34 (10.20)	1650	1.7	0.412 (0.251)	17.10 (3.37)	197 (92)	50 (10)	28.99 (98.17)
12th Gear									
283.96 (211.75)	14561 (64.77)	7.32 (11.77)	1652	1.5	0.417 (0.254)	16.88 (3.33)	204 (95)	50 (10)	28.98 (98.14)
13th Gear									
275.92 (205.75)	11348 (50.48)	9.12 (14.67)	1649	1.2	0.433 (0.264)	16.26 (3.20)	206 (97)	50 (10)	28.98 (98.14)

HYDRAULIC PERFORMANCE

CATEGORY: 4N

Quick Attach: Yes

OECD Static test

Maximum force exerted through whole range: 19559 lbs (87.0 kN) (2 x 115 mm cylinders)

Standard pump **High flow pump**
three outlet sets combined

i) Sustained pressure at compensator cutoff:	2973 psi (205 bar)	2899 psi (200 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	46.5 GPM (176.2 l/min)	60.0 GPM (226.9 l/min)
iii) Pump delivery rate at maximum hydraulic power:	46.9 GPM (177.6 l/min)	59.7 GPM (226.0 l/min)
Delivery pressure:	2667 psi (184 bar)	2569 psi (177 bar)
Power:	73.0 HP (54.4 kW)	89.5 hp (66.7 kW)
	single outlet set	
i) Sustained pressure at compensator cutoff:	2957 psi (204 bar)	2890 psi (199 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	40.8 GPM (154.4 l/min)	44.9 GPM (170.0 l/min)
iii) Pump delivery rate at maximum hydraulic power:	34.2 GPM (129.5 l/min)	38.7 GPM (146.6 l/min)
Delivery pressure:	2264 psi (156 bar)	2170 psi (150 bar)
Power:	45.2 HP (33.7 kW)	49.0 hp (36.6 kW)

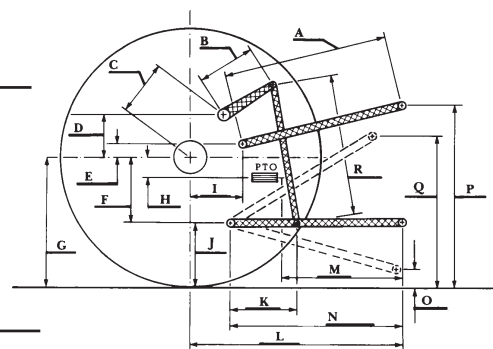
HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	24.0	610
B	20.5	520
C	22.9	581
D	20.7	525
E	10.5	266
F	15.7	400
G	36.6	930
H	3.5	90
I	20.9	530
J	20.9	530
K	30.2	768
L	51.0	1295
*L'	58.1	1475
M	25.0	636
N	43.1	1095
O	9.0	230
P	48.4	1230
Q	37.4	951
R	39.6	1005

*L' to Quick Attach ends

TwinFlow system

	Main pump	TwinFlow pump
i) Sustained pressure at compensator cutoff:	3090 psi (213 bar)	2935 psi (202 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	43.6 GPM (164.9 l/min)	33.5 GPM (126.7 l/min)
Combined flow:	77.1 GPM (291.6 l/min)	
iii) Pump delivery rate at maximum hydraulic power:	36.3 GPM (137.4 l/min)	34.5 GPM (130.7 l/min)
Delivery pressure:	2797 psi (193 bar)	2764 psi (191 bar)
Power:	59.2 HP (44.1 kW)	55.7 Hp (41.5 kW)



CASE IH MAGNUM 340 DIESEL