NEBRASKA OECD TRACTOR TEST 1994–SUMMARY 769
CASE IH MAGNUM 210 DIESEL
19 SPEED
CHASSIS SERIAL NUMBERS ZARH06086 AND HIGHER

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	D.E.F. Consumption 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—1109 rpm)						
202.32 *(150.87)*	2099	10.57 *(40.00)*	0.369 *(0.224)*	19.15 *(3.77)*	0.59 *(2.24)*	
Standard Power Take-off Speed (1000 rpm)						
214.33 *(159.83)*	1893	10.84 *(41.02)*	0.357 *(0.217)*	19.78 *(3.90)*	0.58 *(2.21)*	
Maximum Power (1 hour)						
214.60 *(160.03)*	1800	10.72 *(40.58)*	0.352 *(0.214)*	20.02 *(3.94)*	0.61 *(2.31)*	
VARYING POWER AND FUEL CONSUMPTION						
202.32 *(150.87)*	2099	10.57 *(40.00)*	0.369 *(0.224)*	19.15 *(3.77)*	0.59 *(2.24)*	Air temperature
177.46 *(132.33)*	2167	9.57 *(36.22)*	0.380 *(0.231)*	18.55 *(3.65)*	0.53 *(2.00)*	77°F *(25°C)*
133.90 *(99.85)*	2180	7.58 *(28.70)*	0.400 *(0.243)*	17.66 *(3.48)*	0.39 *(1.48)*	Relative humidity
89.89 *(67.03)*	2196	5.67 *(21.48)*	0.445 *(0.271)*	15.84 *(3.12)*	0.24 *(0.92)*	68%
45.37 *(33.83)*	2211	3.75 *(14.20)*	0.583 *(0.355)*	12.10 *(2.38)*	0.11 *(0.42)*	Barometer
5.38 *(4.01)*	2225	2.10 *(7.94)*	2.752 *(1.674)*	2.56 *(0.51)*	0.00 *(0.00)*	28.80" Hg *(97.53 kPa)*

Maximum torque - 697 lb.-ft. *(945 Nm)* at 1499 rpm
Maximum torque rise - 37.7%
Torque rise at 1700 engine rpm - 30%
Power increase at 1800 engine rpm - 6.1%

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)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F cool-ing med	*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—9th Gear									
174.51 *(130.13)*	14058 *(62.53)*	4.66 *(7.49)*	2101	3.7	0.434 *(0.264)*	16.26 *(3.20)*	187 *(86)*	79 *(26)*	28.67 *(97.09)*
75% of Pull at Maximum Power—9th Gear									
135.03 *(100.69)*	10584 *(47.08)*	4.79 *(7.70)*	2131	2.4	0.454 *(0.276)*	15.53 *(3.06)*	187 *(86)*	86 *(30)*	28.68 *(97.12)*
50% of Pull at Maximum Power—9th Gear									
91.70 *(68.38)*	7034 *(31.29)*	4.89 *(7.87)*	2157	1.5	0.506 *(0.308)*	13.96 *(2.75)*	185 *(85)*	86 *(30)*	28.68 *(97.12)*
75% of Pull at Reduced Engine Speed—11th Gear									
135.27 *(100.87)*	10580 *(47.06)*	4.80 *(7.72)*	1503	2.4	0.416 *(0.253)*	16.95 *(3.34)*	185 *(85)*	86 *(30)*	28.68 *(97.12)*
50% of Pull at Reduced Engine Speed—11th Gear									
91.87 *(68.50)*	7031 *(31.27)*	4.90 *(7.89)*	1521	1.5	0.444 *(0.270)*	15.89 *(3.13)*	183 *(84)*	86 *(30)*	28.68 *(97.12)*

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

Dates of tests: July 8 -12, 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)*** 0.8476 **Fuel weight** 7.057 lbs/gal *(0.846 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 Akcela Nexplore fluid **Front axle lubricant** SAE 85W-140 API GL-5 **Total time engine was operated:** 19.0 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.** *000754950* **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 4.094" x 5.197" *(104.0 mm x 132.0 mm)* **Compression ratio** 17.5 to 1 **Displacement** 410 cu in *(6728 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: 70.3 - 75.3 lb/h *(31.9 - 34.1kg/h)* **High idle:** 2175 - 2225 rpm, 2200-2250 rpm(PTO engaged) **Turbo boost:** nominal 21.0 - 23.9 psi *(145 -165 kPa)* as measured 22.1 psi *(153 kPa)*

CHASSIS: Type front wheel assist **SerialNo.** *ZARH06386* **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 1.15 *(1.85)* second 1.37 *(2.20)* third 1.65 *(2.65)* fourth 1.97 *(3.17)* fifth 2.34 *(3.77)* sixth 2.80 *(4.50)* seventh 3.32 *(5.35)* eighth 3.98 *(6.40)* ninth 4.78 *(7.69)* tenth 5.71 *(9.19)* eleventh 6.80 *(10.94)* twelfth 8.12 *(13.06)* thirteenth 9.61 *(15.46)* fourteenth 11.48 *(18.48)* fifteenth 13.79 *(22.20)* sixteenth 16.49 *(26.54)* seventeenth 19.64 *(31.60)* eighteenth 24.56 *(39.52)* nineteenth 26.22 *(42.20)* (1850 engine rpm) reverse 2.54 *(4.08)*, 3.03 *(4.88)*, 3.65 *(5.87)*, 4.36 *(7.01)*, 5.19 *(8.35)*, 6.19 *(9.96)*

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)*	Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					7th Gear				
147.90	18005	3.08	2110	8.8	0.470	15.03	187	85	28.67
(110.29)	*(80.09)*	*(4.96)*			*(0.286)*	*(2.96)*	*(86)*	*(29)*	*(97.09)*
					8th Gear				
169.66	17034	3.73	2100	6.7	0.446	15.83	187	77	28.68
(126.51)	*(75.77)*	*(6.00)*			*(0.271)*	*(3.12)*	*(86)*	*(25)*	*(97.12)*
					9th Gear				
174.51	14058	4.66	2101	3.7	0.434	16.26	187	79	28.67
(130.13)	*(62.53)*	*(7.49)*			*(0.264)*	*(3.20)*	*(86)*	*(26)*	*(97.09)*
					10th Gear				
174.39	11642	5.62	2100	2.7	0.434	16.25	187	81	28.67
(130.04)	*(51.78)*	*(9.04)*			*(0.264)*	*(3.20)*	*(86)*	*(27)*	*(97.09)*
					11th Gear				
172.45	9611	6.73	2100	2.1	0.431	16.37	186	83	28.67
(128.59)	*(42.75)*	*(10.83)*			*(0.262)*	*(3.22)*	*(86)*	*(28)*	*(97.09)*
					12th Gear				
167.43	7797	8.05	2098	1.7	0.447	15.79	186	83	28.67
(124.85)	*(34.68)*	*(12.96)*			*(0.272)*	*(3.11)*	*(86)*	*(28)*	*(97.09)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in 9th gear	67.3	67.1
Bystander in 18th gear		82.2

TIRES, BALLAST AND WEIGHT	With Ballast	Without Ballast
Rear Tires - No., size, ply & psi *(kPa)*	Four 520/85R42;**;8*(55)*	Two 520/85R42;**;16*(110)*
Ballast - Duals (total)	1950 lb *(885 kg)*	None
- Cast Iron (total)	2400 lb *(1089 kg)*	None
Front Tires - No., size, ply & psi *(kPa)*	Two 420/90R30;**;18*(115)*	Two 420/90R30;**;15*(105)*
Ballast - Liquid (total)	None	None
- Cast Iron (total)	1400 lb *(635 kg)*	None
Height of Drawbar	19.0 in *(485 mm)*	18.5 in*(470 mm)*
Static Weight with operator - Rear	14995 lb *(6802 kg)*	11125 lb*(5046 kg)*
- Front	9780 lb *(4436 kg)*	7900 lb*(3583 kg)*
- Total	24775 lb*(11238 kg)*	19025 lb*(8629 kg)*

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 1950 engine rpm or 1000 rpm at 1893 engine rpm **Unladen tractor mass** 18850 lb *(8550 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

Note 1: The performance figures on this report apply to tractors with chassis serial numbers ZARH06086 and higher.

Note 2: The performance figures on this report are the result of replacing the electronic engine control module of the Case IH Magnum 180 with the Case IH Magnum 210 module and changing the turbocharger to a waste gated version.

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 pull in 7th gear (unballasted tractor) was limited to avoid excessive tractor bouncing. 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. **1994**, Nebraska Summary 769, January 13, 2012.

Roger M. Hoy
Director

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

DRAWBAR PERFORMANCE AT 1800 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)*
					7th Gear				
148.26	18022	3.09	2110	8.7	0.469	15.06	187	85	28.68
(110.56)	*(80.16)*	*(4.96)*			*(0.285)*	*(2.97)*	*(86)*	*(30)*	*(97.12)*
					8th Gear				
170.22	17358	3.68	2075	7.4	0.448	15.76	187	78	28.68
(126.93)	*(77.21)*	*(5.92)*			*(0.272)*	*(3.10)*	*(86)*	*(26)*	*(97.12)*
					9th Gear				
181.49	16575	4.11	1893	5.7	0.428	16.48	187	81	28.67
(135.33)	*(73.73)*	*(6.61)*			*(0.261)*	*(3.25)*	*(86)*	*(27)*	*(97.09)*
					10th Gear				
184.07	14530	4.75	1801	4.0	0.417	16.90	187	82	28.67
(137.26)	*(64.63)*	*(7.64)*			*(0.254)*	*(3.33)*	*(86)*	*(28)*	*(97.09)*
					11th Gear				
186.94	12251	5.72	1801	2.9	0.410	17.22	187	83	28.67
(139.40)	*(54.50)*	*(9.21)*			*(0.249)*	*(3.39)*	*(86)*	*(28)*	*(97.09)*
					12th Gear				
183.69	10006	6.89	1800	2.2	0.414	17.03	187	84	28.67
(136.98)	*(44.51)*	*(11.08)*			*(0.252)*	*(3.35)*	*(86)*	*(29)*	*(97.09)*
					13th Gear				
188.69	8665	8.17	1800	1.8	0.404	17.46	187	85	28.67
(140.71)	*(38.54)*	*(13.14)*			*(0.246)*	*(3.44)*	*(86)*	*(29)*	*(97.09)*

DRAWBAR PERFORMANCE AT 1800 ENGINE RPM

BALLASTED - FRONT DRIVE ENGAGED

MAXIMUM POWER IN SELECTED GEARS

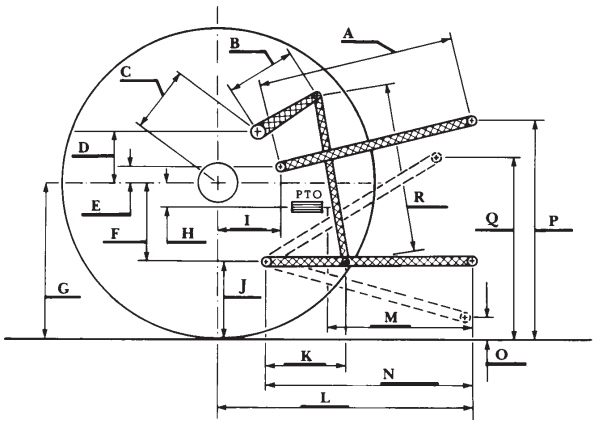
Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
				5th Gear					
139.38 *(103.94)*	24450 *(108.76)*	2.14 *(3.44)*	2120	10.4	0.494 *(0.300)*	14.30 *(2.82)*	187 *(86)*	72 *(22)*	28.85 *(97.70)*
				6th Gear					
162.03 *(120.82)*	23647 *(105.19)*	2.57 *(4.14)*	2073	7.7	0.465 *(0.283)*	15.18 *(2.99)*	188 *(86)*	71 *(22)*	28.84 *(97.66)*
				7th Gear					
176.89 *(131.90)*	22643 *(100.72)*	2.93 *(4.72)*	1957	6.3	0.435 *(0.264)*	16.23 *(3.20)*	187 *(86)*	71 *(22)*	28.85 *(97.70)*
				8th Gear					
179.55 *(133.89)*	20590 *(91.59)*	3.27 *(5.26)*	1800	4.7	0.420 *(0.256)*	16.79 *(3.31)*	187 *(86)*	72 *(22)*	28.84 *(97.66)*
				9th Gear					
184.40 *(137.51)*	17275 *(76.84)*	4.01 *(6.45)*	1800	3.1	0.414 *(0.252)*	17.04 *(3.36)*	187 *(86)*	72 *(22)*	28.84 *(97.66)*
				10th Gear					
183.33 *(136.71)*	14280 *(63.52)*	4.82 *(7.75)*	1800	2.3	0.415 *(0.253)*	16.99 *(3.35)*	186 *(86)*	73 *(23)*	28.84 *(97.66)*
				11th Gear					
184.43 *(137.53)*	12010 *(53.42)*	5.76 *(9.27)*	1801	1.9	0.413 *(0.251)*	17.10 *(3.37)*	186 *(86)*	73 *(23)*	28.84 *(97.66)*
				12th Gear					
180.23 *(134.40)*	9792 *(43.56)*	6.91 *(11.11)*	1798	1.5	0.423 *(0.257)*	16.67 *(3.28)*	187 *(86)*	74 *(23)*	28.85 *(97.70)*
				13th Gear					
183.09 *(136.53)*	8395 *(37.34)*	8.18 *(13.16)*	1799	1.3	0.417 *(0.253)*	16.94 *(3.34)*	186 *(86)*	74 *(23)*	28.85 *(97.70)*

HYDRAULIC PERFORMANCE

CATEGORY: IIIN
Quick Attach: No/Yes
OECD Static test

Maximum force exerted through whole range:	12204 lbs *(54.3 kN)*(100 mm cylinders)
	14269 lbs *(63.5 kN)*(110 mm cylinders w/QA)
	two outlet sets combined
i) Sustained pressure at compensator cutoff:	2856 psi *(197 bar)*
ii) Pump delivery rate at minimum pressure and 2200 engine rpm:	35.8 GPM *(135.6 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	31.5 GPM *(119.2 l/min)*
Delivery pressure:	2528 psi *(174 bar)*
Power:	46.4 HP *(34.6 kW)*
	single outlet set
i) Sustained pressure at compensator cutoff:	2857 psi *(197 bar)*
ii) Pump delivery rate at minimum pressure and 2200 engine rpm:	32.4 GPM *(122.7 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	28.8 GPM *(109.1 l/min)*
Delivery pressure:	2385 psi *(164 bar)*
Power:	40.1 HP *(29.9 kW)*

HITCH DIMENSIONS AS TESTED—NO LOAD



	100 mm cylinders		110 mm cylinders w/QC	
	inch	*mm*	inch	*mm*
A	29.5	*750*	26.8	*680*
B	17.9	*454*	17.9	*454*
C	15.1	*383*	15.1	*383*
D	14.6	*372*	14.6	*372*
E	10.9	*277*	10.9	*277*
F	10.6	*270*	10.6	*270*
G	36.4	*925*	36.4	*925*
H	2.8	*71*	2.8	*71*
I	19.7	*500*	19.7	*500*
J	25.8	*655*	25.8	*655*
K	26.9	*682*	26.9	*682*
L	48.2	*1224*	48.1	*1223*
*L'	--	--	53.1	*1349*
M	22.4	*570*	22.4	*570*
N	38.3	*974*	38.3	*974*
O	9.0	*229*	9.1	*230*
P	47.8	*1215*	52.6	*1335*
Q	40.2	*1022*	37.7	*957*
R	36.6	*930*	37.7	*957*

*L' to Quick Attach ends

CASE IH MAGNUM 210 DIESEL

Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln