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2011

Test 2007: New Holland T8.390

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 2007–SUMMARY 790

NEW HOLLAND T8.390 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—1109 rpm)						
293.62 (218.96)	2000	15.39 (58.27)	0.369 (0.225)	19.08 (3.76)	1.32 (5.00)	
Standard Power Take-off Speed (1000 rpm)						
332.40 (247.87)	1803	16.70 (63.21)	0.354 (0.215)	19.91 (3.92)	1.40 (5.30)	
Maximum Power (1 hour)						
332.40 (247.87)	1803	16.70 (63.21)	0.354 (0.215)	19.91 (3.92)	1.40 (5.30)	

VARYING POWER AND FUEL CONSUMPTION

293.62 (218.96)	2000	15.39 (58.27)	0.369 (0.225)	19.08 (3.76)	1.32 (5.00)	Air temperature
261.06 (194.67)	2084	14.16 (53.60)	0.382 (0.232)	18.44 (3.63)	1.02 (3.86)	73°F (23°C)
197.21 (147.06)	2115	11.17 (42.29)	0.399 (0.243)	17.65 (3.48)	0.82 (3.10)	Relative humidity
134.13 (100.02)	2147	8.19 (31.01)	0.430 (0.262)	16.37 (3.23)	0.60 (2.27)	18%
68.02 (50.72)	2184	5.41 (20.49)	0.561 (0.341)	12.57 (2.48)	0.33 (1.25)	Barometer
5.15 (3.84)	2215	2.94 (11.11)	4.019 (2.445)	1.75 (0.35)	0.00 (0.00)	28.93" Hg (97.97 kPa)

Maximum torque - 1116 lb.-ft. (1514 Nm) at 1450 rpm

Maximum torque rise - 45.0%

Torque rise at 1599 engine rpm - 39%

Power increase at 1800 engine rpm - 13.2%

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									
259.61 (193.59)	19517 (86.81)	4.99 (8.03)	2001	2.8	0.427 (0.260)	16.51 (3.25)	189 (87)	50 (10)	28.92 (97.93)
75% of Pull at Maximum Power—8th Gear									
205.84 (153.49)	14590 (64.90)	5.29 (8.51)	2097	1.7	0.449 (0.273)	15.69 (3.09)	185 (85)	54 (12)	28.87 (97.77)
50% of Pull at Maximum Power—8th Gear									
141.36 (105.41)	9774 (43.48)	5.43 (8.73)	2136	1.1	0.500 (0.304)	14.11 (2.78)	182 (83)	55 (13)	28.87 (97.77)
75% of Pull at Reduced Engine Speed—11th Gear									
206.80 (154.21)	14506 (64.52)	5.35 (8.61)	1396	1.7	0.405 (0.246)	17.41 (3.43)	185 (85)	55 (13)	28.87 (97.77)
50% of Pull at Reduced Engine Speed—11th Gear									
141.61 (105.60)	9765 (43.44)	5.44 (8.75)	1413	1.1	0.428 (0.260)	16.46 (3.24)	183 (84)	54 (12)	28.87 (97.77)

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

Dates of tests: October 18 - 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** New Holland Ambra Mastertran fluid **Front axle lubricant** SAE 85W-140 API GL-5 **Total time engine was operated:** 22.0 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.** *11H0012880* **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 25.2 psi (174 kPa)

CHASSIS: Type front wheel assist with duals **Serial No.** *ZBRC05700* **Tread width** rear 64.0" (1626 mm) to 129.0" (3277 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) **Wheelbase** 136.0" (3454 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** 26495 lb (12018 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) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
5th Gear									
219.28 (163.52)	26800 (119.21)	3.07 (4.93)	2075	11.6	0.486 (0.296)	14.49 (2.85)	188 (86)	52 (11)	28.91 (97.90)
6th Gear									
240.76 (179.53)	25688 (114.26)	3.52 (5.66)	2005	8.6	0.460 (0.280)	15.33 (3.02)	188 (87)	49 (10)	28.93 (97.97)
7th Gear									
256.85 (191.53)	22514 (100.15)	4.28 (6.89)	2000	4.4	0.428 (0.260)	16.48 (3.25)	188 (87)	50 (10)	28.92 (97.93)
8th Gear									
259.61 (193.59)	19517 (86.81)	4.99 (8.03)	2001	2.8	0.427 (0.260)	16.51 (3.25)	189 (87)	50 (10)	28.92 (97.93)
9th Gear									
255.98 (190.88)	16545 (73.59)	5.81 (9.34)	2001	1.9	0.430 (0.262)	16.39 (3.23)	190 (88)	50 (10)	28.90 (97.87)
10th Gear									
256.64 (191.38)	14401 (64.06)	6.69 (10.76)	2000	1.6	0.427 (0.260)	16.50 (3.25)	189 (87)	51 (10)	28.89 (97.83)
11th Gear									
254.76 (189.97)	12440 (55.33)	7.68 (12.36)	1999	1.3	0.432 (0.263)	16.32 (3.21)	189 (87)	51 (10)	28.89 (97.83)
12th Gear									
249.85 (186.31)	10614 (47.21)	8.83 (14.20)	2001	1.1	0.438 (0.267)	16.09 (3.17)	191 (88)	51 (11)	28.88 (97.80)

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 17750 lbs (8051 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. **2007**, Nebraska Summary 790, 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	68.0	68.0
Bystander in 18th gear		86.5

TIRES, BALLAST AND WEIGHT

Rear Tires -No., size, ply & psi (kPa)

Ballast - Triples (total)

- Cast Iron (total)

Front Tires -No., size, ply & psi (kPa)

Ballast - Duals (total)

- Cast Iron (total)

Height of Drawbar

Static Weight with operator - Rear

- Front

- Total

With Ballast

Six 520/85R42;**,10(70)

2320 lb (1053 kg)

4085 lb (1853 kg)

Four 420/90R30;**,15(105)

1140 lb (517 kg)

3080 lb (1397 kg)

21.0 in (535 mm)

22805 lb(10344 kg)

14490 lb (6573 kg)

37295 lb(16917 kg)

Without Ballast

Four 520/85R42;**,9(60)

None

None

Two 420/90R30;**,17(120)

None

None

20.0 in (510 mm)

17210 lb (7806 kg)

9460 lb (4291 kg)

26670 lb(12097 kg)

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)	Consumption Hp.hr/gal (kW.h/l)	Temp.°F cool- ing med	Temp.°C Air dry bulb	Barom. inch Hg (kPa)
5th Gear									
221.34 (165.05)	26952 (119.89)	3.08 (4.95)	2074	11.2	0.482 (0.293)	14.63 (2.88)	186 (86)	51 (11)	28.90 (97.87)
6th Gear									
241.01 (179.72)	25473 (113.31)	3.55 (5.71)	2016	8.2	0.458 (0.279)	15.38 (3.03)	188 (87)	49 (10)	28.93 (97.97)
7th Gear									
263.78 (196.70)	24276 (107.98)	4.07 (6.55)	1936	5.9	0.432 (0.263)	16.29 (3.21)	188 (87)	50 (10)	28.92 (97.93)
8th Gear									
278.62 (207.77)	22640 (100.71)	4.62 (7.43)	1879	4.3	0.422 (0.257)	16.69 (3.29)	190 (88)	51 (10)	28.91 (97.90)
9th Gear									
286.10 (213.34)	20824 (92.63)	5.16 (8.30)	1801	3.2	0.416 (0.253)	16.95 (3.34)	194 (90)	50 (10)	28.89 (97.83)
10th Gear									
289.19 (215.65)	18163 (80.79)	5.97 (9.61)	1800	2.2	0.411 (0.250)	17.13 (3.38)	194 (90)	51 (10)	28.89 (97.83)
11th Gear									
288.09 (214.82)	15683 (69.76)	6.89 (11.08)	1801	1.7	0.412 (0.250)	17.12 (3.37)	195 (91)	51 (10)	28.89 (97.83)
12th Gear									
286.63 (213.74)	13485 (59.98)	7.97 (12.83)	1811	1.4	0.417 (0.254)	16.91 (3.33)	196 (91)	51 (11)	28.88 (97.80)

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)	Consumption Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd Gear									
226.86 (169.17)	37986 (168.97)	2.24 (3.60)	2017	12.9	0.484 (0.294)	14.57 (2.87)	200 (93)	67 (19)	28.56 (96.72)
4th Gear									
253.25 (188.85)	36914 (164.20)	2.58 (4.14)	1924	8.6	0.451 (0.274)	15.63 (3.08)	208 (98)	69 (20)	28.56 (96.72)
5th Gear									
271.29 (202.30)	35060 (155.95)	2.90 (4.67)	1846	6.3	0.432 (0.263)	16.30 (3.21)	205 (96)	70 (21)	28.56 (96.72)
6th Gear									
280.88 (209.45)	31806 (141.48)	3.31 (5.33)	1801	4.2	0.422 (0.257)	16.69 (3.29)	210 (99)	70 (21)	28.56 (96.72)
7th Gear									
286.18 (213.40)	27359 (121.70)	3.92 (6.31)	1800	2.9	0.415 (0.252)	16.99 (3.35)	204 (96)	72 (22)	28.56 (96.72)
8th Gear									
287.18 (214.15)	23808 (105.90)	4.53 (7.28)	1799	2.3	0.412 (0.250)	17.12 (3.37)	209 (98)	72 (22)	28.57 (96.75)
9th Gear									
285.81 (213.12)	20432 (90.89)	5.25 (8.45)	1802	1.9	0.413 (0.251)	17.07 (3.36)	210 (99)	72 (22)	28.57 (96.75)
10th Gear									
282.27 (210.49)	17539 (78.02)	6.04 (9.71)	1802	1.6	0.420 (0.255)	16.78 (3.31)	209 (98)	73 (23)	28.57 (96.75)
11th Gear									
279.85 (208.68)	15150 (67.39)	6.93 (11.14)	1800	1.4	0.424 (0.258)	16.61 (3.27)	209 (98)	72 (22)	28.58 (96.78)
12th Gear									
276.26 (206.01)	12919 (57.46)	8.02 (12.91)	1810	1.2	0.428 (0.261)	16.45 (3.24)	214 (101)	72 (22)	28.58 (96.78)

HYDRAULIC PERFORMANCE

CATEGORY: 4N

Quick Attach: Yes

OECD Static test

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

	<u>Standard pump</u> three outlet sets combined	<u>High flow pump</u> single outlet set
i) Sustained pressure at compensator cutoff:	2975 psi (205 bar)	2899 psi (200 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	45.8 GPM (173.4 l/min)	60.0 GPM (226.9 l/min)
iii) Pump delivery rate at maximum hydraulic power:	46.5 GPM (176.2 l/min)	59.7 GPM (226.0 l/min)
Delivery pressure:	2756 psi (190 bar)	2569 psi (177 bar)
Power:	74.8 HP (55.8 kW)	89.5 hp (66.7 kW)
i) Sustained pressure at compensator cutoff:	2963 psi (204 bar)	2890 psi (199 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	35.8 GPM (135.6 l/min)	44.9 GPM (170.0 l/min)
iii) Pump delivery rate at maximum hydraulic power:	34.2 GPM (129.3 l/min)	38.7 GPM (146.6 l/min)
Delivery pressure:	2420 psi (167 bar)	2170 psi (150 bar)
Power:	48.2 HP (36.0 kW)	49.0 hp (36.6 kW)

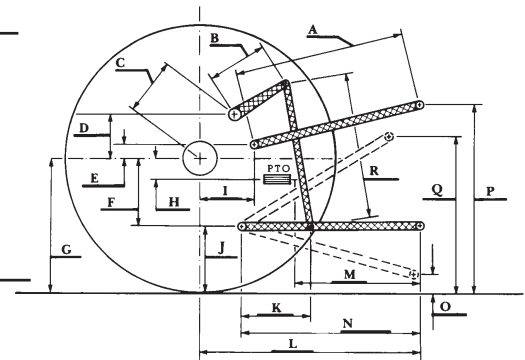
HITCH DIMENSIONS AS TESTED—NO LOAD

	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

MegaFlow system

	<u>Main pump</u>	<u>MegaFlow pump</u>
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)



NEW HOLLAND T8.390 DIESEL

Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln