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2015

Test 2122: New Holland T8.320

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 2122—SUMMARY 985

NEW HOLLAND T8.320 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)						
215.51 (160.71)	2000	11.87 (44.92)	0.385 (0.234)	18.16 (3.58)	0.91 (3.45)	
Standard Power Take-off Speed (998 rpm)						
261.49 (194.99)	1800	13.52 (51.19)	0.361 (0.220)	19.34 (3.81)	1.18 (4.45)	
Maximum Power (1 hour)						
261.49 (194.99)	1800	13.52 (51.19)	0.361 (0.220)	19.34 (3.81)	1.18 (4.45)	

VARYING POWER AND FUEL CONSUMPTION

215.51 (160.71)	2000	11.87 (44.92)	0.385 (0.234)	18.16 (3.58)	0.91 (3.45)	Air temperature
192.02 (143.19)	2096	11.05 (41.84)	0.402 (0.245)	17.37 (3.42)	0.77 (2.91)	77°F (25°C)
146.19 (109.01)	2126	8.99 (34.05)	0.430 (0.261)	16.25 (3.20)	0.58 (2.21)	Relative humidity
99.04 (73.85)	2157	7.00 (26.51)	0.494 (0.301)	14.14 (2.79)	0.43 (1.63)	61%
49.85 (37.18)	2178	4.85 (18.35)	0.679 (0.413)	10.29 (2.03)	0.33 (1.25)	Barometer
1.64 (1.22)	2205	3.09 (11.71)	13.162 (8.006)	0.53 (0.10)	0.27 (1.04)	28.79" Hg (97.49 kPa)

Maximum torque - 878 lb.-ft. (1190 Nm) at 1399 rpm

Maximum torque rise - 55.0%

Torque rise at 1600 engine rpm - 48%

Power increase at 1800 engine rpm - 21.3%

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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—8th Gear										
183.85 (137.09)	13027 (37.95)	5.29 (8.51)	2000	4.6	0.446 (0.271)	15.66 (3.08)	0.044 (0.027)	202 (94)	75 (24)	28.62 (96.92)
75% of Pull at Maximum Power—8th Gear										
147.32 (109.86)	9737 (43.31)	5.67 (9.12)	2117	3.2	0.480 (0.292)	14.55 (2.87)	0.041 (0.025)	198 (92)	82 (28)	28.64 (96.99)
50% of Pull at Maximum Power—8th Gear										
100.38 (74.85)	6506 (28.94)	5.79 (9.32)	2133	2.0	0.546 (0.332)	12.81 (2.52)	0.042 (0.025)	196 (91)	83 (28)	28.64 (96.99)
75% of Pull at Reduced Engine Speed—11th Gear										
147.22 (109.78)	9762 (43.42)	5.66 (9.11)	1391	3.2	0.424 (0.258)	16.46 (3.24)	0.037 (0.022)	193 (89)	83 (29)	28.64 (96.99)
50% of Pull at Reduced Engine Speed—11th Gear										
100.67 (75.07)	6514 (28.97)	5.80 (9.33)	1408	2.0	0.456 (0.278)	15.31 (3.02)	0.039 (0.024)	196 (91)	83 (28)	28.64 (96.99)

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

Dates of tests: September 1 - 17, 2015

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)** 0.8390 **Fuel weight** 6.986 lbs/gal (0.838 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil** SAE 10W40 **API service classification** CJ-4 **Transmission and hydraulic lubricant** New Holland Ambra Mastertran fluid **Front axle lubricant** SAE 85W-140 **API GL-5** **Total time engine was operated:** 21.5 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.** *14H0077615* **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 **Exhaust** DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) integrated within a vertical muffler **Cooling medium temperature control** thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 77.8 - 83.1 lb/h (35.3 - 37.7 kg/h) **High idle:** 2200 - 2250 rpm **Turbo boost:** nominal 17.5 - 19.4 psi (121 - 134 kPa) as measured 18.7 psi (129 kPa)

CHASSIS: Type front wheel assist **Serial No.** *ZFRE01826* **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 2.06 (3.32) second 2.36 (3.80) third 2.73 (4.39) fourth 3.13 (5.03) fifth 3.59 (5.77) sixth 4.11 (6.62) seventh 4.80 (7.72) eighth 5.51 (8.86) ninth 6.35 (10.22) tenth 7.28 (11.72) eleventh 8.35 (13.44) twelfth 9.58 (15.42) thirteenth 11.94 (19.21) fourteenth 13.70 (22.04) fifteenth 15.80 (25.42) sixteenth 18.11 (29.15) seventeenth 20.79 (33.45) eighteenth 23.84 (38.37) reverse 2.96 (4.77), 3.41 (5.48), 6.91 (11.12), 7.92 (12.75)

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)	D.E.F Consumption Hp.hr/gal (kg/kW.h)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
					4th Gear					
153.28 (114.30)	20729 (92.20)	2.78 (4.47)	2054	14.1	0.517 (0.314)	13.52 (2.66)	0.049 (0.030)	193 (89)	76 (25)	28.56 (96.72)
					5th Gear					
166.95 (124.49)	18929 (84.20)	3.31 (5.33)	2024	10.0	0.485 (0.295)	14.41 (2.84)	0.047 (0.029)	204 (96)	77 (25)	28.56 (96.72)
					6th Gear					
174.66 (130.24)	17153 (76.30)	3.82 (6.15)	2000	7.5	0.473 (0.288)	14.77 (2.91)	0.047 (0.029)	203 (95)	79 (26)	28.58 (96.78)
					7th Gear					
182.75 (136.27)	15040 (66.90)	4.56 (7.34)	2000	5.5	0.450 (0.274)	15.53 (3.06)	0.045 (0.027)	205 (96)	76 (25)	28.64 (96.99)
					8th Gear					
183.85 (137.09)	13027 (57.95)	5.29 (8.51)	2000	4.6	0.446 (0.271)	15.66 (3.08)	0.044 (0.027)	202 (94)	75 (24)	28.62 (96.92)
					9th Gear					
184.14 (137.31)	11228 (49.94)	6.15 (9.90)	1999	3.6	0.445 (0.271)	15.68 (3.09)	0.045 (0.027)	205 (96)	75 (24)	28.63 (96.95)
					10th Gear					
182.14 (135.82)	9629 (42.83)	7.09 (11.41)	1999	3.1	0.451 (0.275)	15.48 (3.05)	0.045 (0.027)	206 (96)	77 (25)	28.64 (96.99)
					11th Gear					
179.98 (134.21)	8250 (36.70)	8.18 (13.16)	2000	2.6	0.457 (0.278)	15.28 (3.01)	0.046 (0.028)	208 (98)	77 (25)	28.64 (96.99)

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** 1000 rpm at 1803 engine rpm **Unladen tractor mass** 24185 lb (10971 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. This tractor did not meet the manufacturer's remote flow claim of 44 GPM (166 l/min) nor 3 point lift claim of 14900 lbs (6758 kg), with 38" links. The manufacturer's remote flow claim of 75 GPM (282 l/min), with MegaFlow option, was not verified. The performance results on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2122**, Nebraska Summary 985, January 22, 2016.

Roger M. Hoy
Director

M.F. Kocher
P.J. Jasa
J.D. Luck
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	66.9	67.0
Bystander in 18th gear		82.6

TIRES AND WEIGHT

Rear Tires - No., size, ply & psi(kPa)
Front Tires - No., size, ply & psi(kPa)
Height of Drawbar
Static Weight with operator - Rear
- Front
- Total

Tested Without Ballast

Two 480/80R50;***;22(150)
Two 480/85R34;***;16(110)
22.0 in (560 mm)
15170 lb (6881 kg)
9190 lb (4168 kg)
24360 lb (11049 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)	D.E.F Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th Gear										
153.55 (114.50)	20757 (92.33)	2.78 (4.47)	2054	14.1	0.517 (0.314)	13.52 (2.66)	0.049 (0.030)	193 (89)	76 (25)	28.56 (96.72)
5th Gear										
167.61 (124.98)	19020 (84.61)	3.31 (5.32)	2022	10.1	0.484 (0.294)	14.45 (2.85)	0.047 (0.029)	201 (94)	76 (25)	28.56 (96.72)
6th Gear										
181.78 (135.55)	18292 (81.36)	3.73 (6.00)	1979	8.7	0.471 (0.287)	14.83 (2.92)	0.048 (0.029)	207 (97)	79 (26)	28.58 (96.78)
7th Gear										
200.50 (149.51)	17454 (77.64)	4.31 (6.94)	1945	8.0	0.450 (0.273)	15.54 (3.06)	0.047 (0.029)	208 (98)	80 (27)	28.57 (96.75)
8th Gear										
211.84 (157.97)	16715 (74.35)	4.76 (7.65)	1859	7.4	0.438 (0.266)	15.95 (3.14)	0.048 (0.029)	208 (98)	81 (27)	28.58 (96.78)
9th Gear										
219.46 (163.65)	15332 (68.20)	5.37 (8.64)	1800	6.3	0.428 (0.260)	16.33 (3.22)	0.047 (0.029)	208 (98)	82 (28)	28.58 (96.78)
10th Gear										
223.29 (166.50)	13342 (59.35)	6.28 (10.10)	1800	4.8	0.419 (0.255)	16.66 (3.28)	0.047 (0.028)	208 (98)	79 (26)	28.64 (96.99)
11th Gear										
223.22 (166.45)	11519 (51.24)	7.27 (11.70)	1800	3.8	0.419 (0.255)	16.67 (3.28)	0.047 (0.028)	207 (97)	78 (25)	28.64 (96.99)
12th Gear										
221.63 (165.27)	9903 (44.05)	8.39 (13.50)	1800	3.3	0.421 (0.256)	16.59 (3.27)	0.047 (0.029)	207 (97)	78 (26)	28.63 (96.95)

HYDRAULIC PERFORMANCE

CATEGORY: 3

Quick Attach: Yes

OECD Static test

Maximum force exerted through whole range: 14301 lbs (63.6 kN) (43" links)
14812 lbs (65.9 kN) (38" links)

Standard pump
two outlet sets combined

i) Sustained pressure at compensator cutoff: 2840 psi (196 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed: 43.3 GPM (163.8 l/min)

iii) Pump delivery rate at maximum hydraulic power: 42.8 GPM (161.8 l/min)
Delivery pressure: 2514 psi (173 bar)
Power: 62.7 HP (46.8 kW)

single outlet set
Sustained pressure at compensator cutoff: 2825 psi (195 bar)

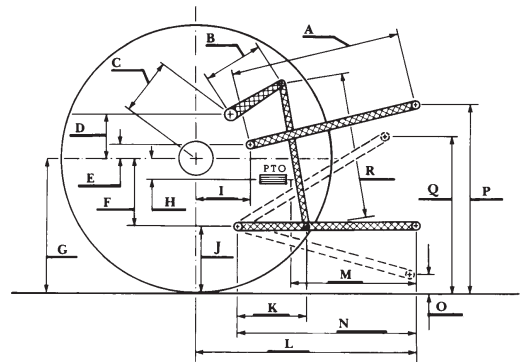
ii) Pump delivery rate at minimum pressure and rated engine speed: 42.8 GPM (162.0 l/min)

iii) Pump delivery rate at maximum hydraulic power: 39.0 GPM (147.6 l/min)
Delivery pressure: 2217 psi (153 bar)
Power: 50.4 HP (37.6 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD

	38" links		43" links	
	inch	mm	inch	mm
A	25.0	635	30.3	770
B	20.5	520	20.5	520
C	22.9	581	22.9	581
D	20.7	525	20.7	525
E	10.5	266	10.5	266
F	15.7	400	15.7	400
G	36.6	930	36.6	930
H	3.5	90	3.5	90
I	20.9	530	20.9	530
J	20.9	530	20.9	530
K	30.2	768	30.2	768
L	46.2	1174	51.0	1295
*L'	51.1	1299	55.9	1420
M	20.3	515	25.0	636
N	38.3	974	43.1	1095
O	9.0	230	9.0	230
P	47.8	1215	47.8	1215
Q	37.4	950	42.7	1085
R	40.0	1015	38.6	980

*L' to Quick Attach ends



NEW HOLLAND T8.320 DIESEL