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2015

## Test 2123A: New Holland T8.350

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# NEBRASKA OECD TRACTOR TEST 2123A—SUMMARY 986A

## NEW HOLLAND T8.350 DIESEL

### 19 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>						
<b>Rated Engine Speed—(PTO speed—1109 rpm)</b>						
242.08 (180.52)	2000	12.99 (49.18)	0.375 (0.228)	18.63 (3.67)	1.18 (4.47)	
<b>Standard Power Take-off Speed (998 rpm)</b>						
296.56 (221.15)	1800	15.12 (57.23)	0.356 (0.217)	19.62 (3.86)	1.56 (5.90)	
<b>Maximum Power (1 hour)</b>						
296.56 (221.15)	1800	15.12 (57.23)	0.356 (0.217)	19.62 (3.86)	1.56 (5.90)	

#### VARYING POWER AND FUEL CONSUMPTION

242.08 (180.52)	2000	12.99 (49.18)	0.375 (0.228)	18.63 (3.67)	1.18 (4.47)	Air temperature
216.84 (161.70)	2108	12.21 (46.20)	0.393 (0.239)	17.77 (3.50)	1.04 (3.94)	74°F (23°C)
166.36 (124.05)	2152	10.07 (38.11)	0.423 (0.257)	16.52 (3.26)	0.67 (2.53)	Relative humidity
111.80 (83.37)	2170	7.63 (28.88)	0.477 (0.290)	14.66 (2.89)	0.45 (1.69)	51%
56.95 (42.47)	2204	5.33 (20.16)	0.653 (0.397)	10.69 (2.11)	0.26 (0.98)	Barometer
0.54 (0.40)	2224	3.16 (11.97)	40.894 (24.875)	0.17 (0.03)	0.11 (0.42)	28.91" Hg (97.90 kPa)

Maximum torque - 950 lb.-ft. (1287 Nm) at 1300 rpm

Maximum torque rise - 49.4%

Torque rise at 1600 engine rpm - 48%

Power increase at 1800 engine rpm - 22.5%

#### 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)
<b>Maximum Power—8th Gear</b>										
213.10 (158.91)	14852 (66.06)	5.38 (8.66)	2000	3.0	0.427 (0.260)	16.36 (3.22)	0.048 (0.029)	212 (100)	68 (20)	28.53 (96.61)
<b>75% of Pull at Maximum Power—8th Gear</b>										
171.21 (127.67)	11148 (49.59)	5.76 (9.27)	2124	2.2	0.458 (0.279)	15.25 (3.00)	0.047 (0.029)	200 (93)	73 (23)	28.56 (96.72)
<b>50% of Pull at Maximum Power—8th Gear</b>										
117.10 (87.32)	7441 (33.10)	5.90 (9.50)	2160	1.5	0.521 (0.317)	13.41 (2.64)	0.047 (0.028)	207 (97)	73 (23)	28.56 (96.72)
<b>75% of Pull at Reduced Engine Speed—11th Gear</b>										
171.24 (127.69)	11147 (49.58)	5.76 (9.27)	1400	2.2	0.404 (0.246)	17.28 (3.40)	0.057 (0.035)	199 (93)	76 (24)	28.56 (96.72)
<b>50% of Pull at Reduced Engine Speed—11th Gear</b>										
117.58 (87.68)	7519 (33.44)	5.86 (9.43)	1415	1.5	0.439 (0.267)	15.93 (3.14)	0.060 (0.036)	199 (93)	75 (24)	28.57 (96.74)

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

**Dates of tests:** September 11 - 17, 2015

**Manufacturer:** CNH Industrial 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 Ultratract fluid **Front axle lubricant** SAE 85W-140 API GL-5 **Total time engine was operated:** 18.0 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.** \*14H00061268\* **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:** 87.5 - 93.0 lb/h (39.7 - 42.2 kg/h) **High idle:** 2200 - 2250 rpm **Turbo boost:** nominal 18.1 - 21.0 psi (125 - 145 kPa) as measured 19.5 psi (134 kPa)

**CHASSIS: Type** front wheel assist with duals **Serial No.** \*ZERF06296\* **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) nineteenth 26.10 (42.00) electronically limited reverse 2.96 (4.77), 3.40 (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)	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										
199.08 (148.45)	26131 (116.23)	2.86 (4.60)	2000	9.3	0.456 (0.277)	15.33 (3.02)	0.053 (0.032)	213 (100)	72 (22)	28.57 (96.75)
5th Gear										
205.24 (153.05)	22592 (100.49)	3.41 (5.49)	2000	5.8	0.442 (0.269)	15.80 (3.11)	0.052 (0.031)	212 (100)	73 (23)	28.57 (96.75)
6th Gear										
206.57 (154.04)	19582 (87.11)	3.96 (6.37)	2000	4.6	0.440 (0.268)	15.87 (3.13)	0.052 (0.031)	212 (100)	76 (24)	28.58 (96.78)
7th Gear										
211.74 (157.89)	17028 (75.74)	4.66 (7.50)	1999	3.5	0.429 (0.261)	16.28 (3.21)	0.049 (0.030)	213 (101)	71 (22)	28.54 (96.65)
8th Gear										
213.10 (158.91)	14852 (66.06)	5.38 (8.66)	2000	3.0	0.427 (0.260)	16.36 (3.22)	0.048 (0.029)	212 (100)	68 (20)	28.53 (96.61)
9th Gear										
210.85 (157.23)	12687 (56.43)	6.23 (10.03)	2000	2.6	0.432 (0.263)	16.19 (3.19)	0.049 (0.030)	213 (101)	68 (20)	28.52 (96.58)
10th Gear										
208.49 (155.47)	10901 (48.49)	7.17 (11.54)	2000	2.3	0.436 (0.265)	16.02 (3.16)	0.050 (0.030)	213 (100)	68 (20)	28.53 (96.61)
11th Gear										
206.50 (153.98)	9384 (41.74)	8.25 (13.28)	2000	1.9	0.440 (0.268)	15.87 (3.13)	0.050 (0.031)	212 (100)	70 (21)	28.54 (96.64)

**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** 27530 lb (12487 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE:** The data on this summary was obtained from testing conducted on the Case IH Magnum 280 Diesel.

**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 hydraulic flow claim of 44 GPM (166 l/min) nor 3 point hitch 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. **2123A**, Nebraska Summary 986A, 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	66.8	66.8
Bystander in 18th gear		83.2

## **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**  
Four 480/80R50;\*\*\*;12(85)  
Two 420/85R34;\*\*\*;23(160)  
21.0 in (535 mm)  
16085 lb (7296 kg)  
11620 lb (5271 kg)  
27705 lb(12567 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										
197.13 (147.00)	27021 (120.20)	2.74 (4.40)	1985	12.6	0.471 (0.286)	14.84 (2.92)	0.056 (0.034)	213 (101)	71 (22)	28.57 (96.75)
5th Gear										
215.11 (160.41)	25469 (113.29)	3.17 (5.10)	1923	9.0	0.445 (0.271)	15.70 (3.09)	0.056 (0.034)	213 (101)	74 (24)	28.57 (96.75)
6th Gear										
233.00 (173.75)	24564 (109.27)	3.56 (5.73)	1859	7.8	0.432 (0.263)	16.18 (3.19)	0.056 (0.034)	213 (101)	75 (24)	28.58 (96.78)
7th Gear										
254.40 (189.71)	23508 (104.57)	4.06 (6.53)	1800	6.7	0.415 (0.253)	16.83 (3.31)	0.054 (0.033)	213 (100)	77 (25)	28.59 (96.82)
8th Gear										
258.90 (193.06)	20467 (91.04)	4.75 (7.64)	1800	5.0	0.408 (0.248)	17.10 (3.37)	0.053 (0.032)	212 (100)	78 (25)	28.58 (96.78)
9th Gear										
258.85 (193.02)	17552 (78.08)	5.53 (8.90)	1800	3.9	0.408 (0.248)	17.14 (3.38)	0.053 (0.032)	212 (100)	78 (26)	28.58 (96.78)
10th Gear										
260.48 (194.24)	15261 (67.88)	6.40 (10.30)	1800	3.1	0.406 (0.247)	17.21 (3.39)	0.051 (0.031)	212 (100)	69 (20)	28.52 (96.58)
11th Gear										
257.92 (192.33)	13121 (58.37)	7.37 (11.86)	1800	2.6	0.408 (0.248)	17.12 (3.37)	0.052 (0.031)	212 (100)	73 (23)	28.53 (96.61)
12th Gear										
256.26 (191.09)	11322 (50.36)	8.49 (13.66)	1800	2.3	0.411 (0.250)	17.00 (3.35)	0.052 (0.031)	212 (100)	72 (22)	28.54 (96.63)

# HITCH DIMENSIONS AS TESTED—NO LOAD

## 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: 2836 psi (196 bar)  
ii) Pump delivery rate at minimum pressure and rated engine speed: 42.7 GPM (161.8 l/min)

iii) Pump delivery rate at maximum hydraulic power: 43.0 GPM (162.7 l/min)  
Delivery pressure: 2470 psi (170 bar)  
Power: 61.9 HP (46.2 kW)

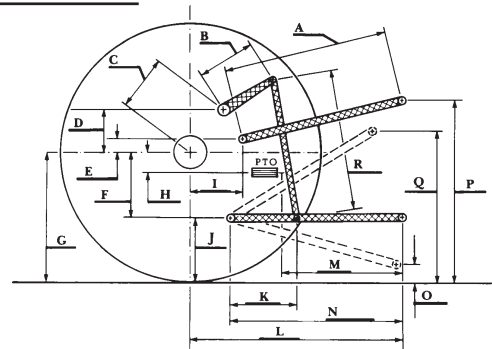
single outlet set  
i) Sustained pressure at compensator cutoff: 2840 psi (196 bar)

ii) Pump delivery rate at minimum pressure and rated engine speed: 42.0 GPM (158.9 l/min)

iii) Pump delivery rate at maximum hydraulic power: 37.8 GPM (143.2 l/min)  
Delivery pressure: 2271 psi (157 bar)  
Power: 50.1 HP (37.4 kW)

	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 T8.350 DIESEL