

# NEBRASKA OECD TRACTOR TEST 2086A—SUMMARY 935A

## NEW HOLLAND T8.420 DIESEL CVT TRANSMISSION

### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption		D.E.F. Consumption		Mean Atmospheric Conditions
		Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Gal/hr (l/h)	
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>						
<b>Rated Engine Speed—(PTO speed—1124 rpm)</b>						
305.95 (228.15)	2000	16.51 (62.48)	0.378 (0.230)	18.54 (3.65)	1.27 (4.79)	
<b>Standard Power Take-off Speed (1000 rpm)</b>						
351.44 (262.07)	1779	18.44 (69.79)	0.367 (0.223)	19.06 (3.76)	1.26 (4.78)	
<b>Maximum Power (1 hour)</b>						
351.68 (262.25)	1749	18.38 (69.59)	0.366 (0.223)	19.13 (3.77)	1.26 (4.77)	

### VARYING POWER AND FUEL CONSUMPTION

305.95 (228.15)	2000	16.51 (62.48)	0.378 (0.230)	18.54 (3.65)	1.27 (4.79)	Air temperature
274.84 (204.95)	2115	15.38 (58.23)	0.392 (0.238)	17.87 (3.52)	1.15 (4.35)	72°F (22°C)
209.15 (155.96)	2143	12.36 (46.79)	0.414 (0.252)	16.92 (3.33)	0.87 (3.31)	Relative humidity
141.94 (105.85)	2178	9.33 (35.31)	0.460 (0.280)	15.22 (3.00)	0.62 (2.34)	68%
71.76 (53.51)	2198	6.28 (23.79)	0.613 (0.373)	11.42 (2.25)	0.37 (1.41)	Barometer
2.05 (1.53)	2216	3.42 (10.88)	11.700 (7.117)	0.60 (0.12)	0.09 (0.33)	28.38" Hg (96.11 kPa)

Maximum torque - 1211 lb.-ft. (1641 Nm) at 1450 rpm  
 Maximum torque rise - 50.7%  
 Torque rise at 1600 engine rpm - 41%  
 Power increase at 1749 engine rpm - 14.9%

### 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)
<b>Maximum Power—5.2 mph (8.3 km/h)-Manual mode</b>									
255.76 (190.72)	20060 (89.23)	4.78 (7.69)	2000	3.5	0.451 (0.274)	15.53 (3.06)	213 (100)	58 (15)	28.63 (96.95)
<b>75% of Pull at Maximum Power—5.2 mph (8.3 km/h)-Manual mode</b>									
194.73 (145.21)	15090 (67.12)	4.84 (7.79)	2135	2.4	0.479 (0.291)	14.63 (2.88)	210 (99)	70 (21)	28.56 (96.72)
<b>50% of Pull at Maximum Power—5.2 mph (8.3 km/h)-Manual mode</b>									
131.29 (97.90)	10078 (44.83)	4.89 (7.86)	2173	1.5	0.556 (0.338)	12.60 (2.48)	204 (96)	71 (22)	28.55 (96.68)
<b>75% of Pull at Reduced Engine Speed—5.2 mph (8.3 km/h)-Automatic mode</b>									
194.19 (144.81)	15056 (66.97)	4.84 (7.79)	1522	2.4	0.431 (0.262)	16.26 (3.20)	206 (96)	70 (21)	28.56 (96.72)
<b>50% of Pull at Reduced Engine Speed—5.2 mph (8.3 km/h)-Automatic mode</b>									
130.91 (97.62)	10060 (44.75)	4.88 (7.85)	1383	1.5	0.467 (0.284)	14.98 (2.95)	192 (89)	72 (22)	28.54 (96.65)

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

**Dates of tests:** May 8-13 and July 14, 15- 2014

**Manufacturer:** CNH Industrial 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)** 0.8410 **Fuel weight** 7.002 lbs/gal (0.839 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 Ultratractor fluid **Front axle lubricant** SAE 85W-140 API GL-5 **Total time engine was operated:** 37.5 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.** \*13H00045588\* **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:** 113.9 - 118.5 lb/h (51.7 - 53.8 kg/h) **High idle:** 2200-2250 rpm **Turbo boost:** nominal 26.1 - 29.0 psi (180 -200 kPa) as measured 28.0 psi (193 kPa)

**CHASSIS: Type** front wheel assist with duals **Serial No.** \*ZERD01053\* **Tread width** rear 64.0" (1626 mm) to 129.0" (3277 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) **Wheelbase** 139.8" (3550 mm) **Hydraulic control system** direct engine drive **Transmission** Infinitely variable with four mechanical ranges and automatic shifting between ranges. **Nominal travel speeds mph (km/h)** forward - 0 - 26.1 mph, (0 - 42 km/h) reverse - 0 - 12.4 mph, (0-20 km/h) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 1778 engine rpm **Unladen tractor mass** 30165 lb (13683 kg)

**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE ENGAGED**

**MANUAL MODE - 2000 ENGINE RPM**  
**DRAWBAR POWER AT SELECTED TRAVEL SPEED SETTINGS**

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	Temp.°F (°C) Air dry bulb	Barom. inch Hg (kPa)	
				3.7 mph (5.9 km/h)					
229.11 (170.85)	28484 (126.70)	3.02 (4.86)	1994	14.1	0.507 (0.308)	13.81 (2.72)	210 (99)	50 (10)	28.65 (97.02)
				4.2 mph (6.8 km/h)					
250.52 (186.81)	24393 (108.50)	3.85 (6.20)	2000	5.3	0.461 (0.280)	15.18 (2.99)	211 (99)	53 (12)	28.65 (96.99)
				4.7 mph (7.6 km/h)					
255.62 (190.62)	22014 (97.92)	4.36 (7.01)	2000	4.1	0.452 (0.275)	15.48 (3.05)	212 (100)	56 (13)	28.63 (96.95)
				5.2 mph (8.3 km/h)					
255.76 (190.72)	20060 (89.23)	4.78 (7.69)	2000	3.5	0.451 (0.274)	15.53 (3.06)	213 (100)	58 (15)	28.63 (96.95)
				5.6 mph (9.0 km/h)					
255.52 (190.54)	18415 (81.91)	5.21 (8.38)	2000	3.2	0.450 (0.274)	15.56 (3.07)	210 (99)	60 (16)	28.63 (96.95)
				6.2 mph (10.0 km/h)					
254.01 (189.41)	16390 (72.90)	5.81 (9.35)	2000	2.8	0.454 (0.276)	15.42 (3.04)	212 (100)	62 (17)	28.62 (96.92)
				6.8 mph (11.0 km/h)					
251.11 (187.25)	14680 (65.30)	6.42 (10.32)	1999	2.4	0.459 (0.279)	15.26 (3.01)	212 (100)	64 (18)	28.61 (96.88)
				7.5 mph (12.0 km/h)					
246.76 (184.01)	13186 (58.65)	7.02 (11.30)	1999	2.1	0.467 (0.284)	14.98 (2.95)	212 (100)	66 (19)	28.60 (96.85)
				8.1 mph (13.0 km/h)					
245.35 (182.95)	12077 (53.72)	7.62 (12.26)	2000	1.9	0.470 (0.286)	14.91 (2.94)	213 (100)	68 (20)	28.59 (96.82)
				8.7 mph (14.0 km/h)					
250.66 (186.91)	11442 (50.89)	8.22 (13.22)	2000	1.7	0.460 (0.280)	15.22 (3.00)	213 (100)	67 (19)	28.59 (96.82)

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

**NOTE 1:** This tractor has an engine control feature that allows the engine to run in a "boosted" mode, increased power level, at certain combinations of drawbar loading and remote hydraulic flow.

**NOTE 2:** The data on this summary was obtained from testing conducted on the Case IH Magnum 370 Diesel.

**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 107°F (42°C). This tractor did not meet the manufacturer's remote hydraulic flow claim of 44 GPM (166 l/min) with standard pump. The manufacturer's 3 point hitch lift claim of 17750 lbs, 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. **2086A**, Nebraska Summary 935A, July 29, 2014.

Roger M. Hoy  
Director

M.F. Kocher  
S. Pitla  
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 at 4.8 mph (7.8 km/h) engine speed 2210 rpm	68.4	68.3
At no load at 4.8 mph (7.8 km/h) engine speed 1080 rpm	67.1	67.0
Bystander		86.0

**TIRES, BALLAST AND WEIGHT**

	With Ballast	Without Ballast
<b>Rear Tires</b> -No., size, ply & psi (kPa)	Six 520/85R42;**,12(85)	Four 520/85R42;**,12(85)
<b>Ballast</b> - Triples (total)	2060 lb (934 kg)	None
- Cast Iron (total)	5645 lb (2560 kg)	None
<b>Front Tires</b> -No., size, ply & psi (kPa)	Four 420/90R30;**,12(85)	Two 420/90R30;**,23(160)
<b>Ballast</b> - Duals (total)	1140 lb (517 kg)	None
- Cast Iron (total)	500 lb (227 kg)	None
<b>Height of Drawbar</b>	21.0 in (535 mm)	21.0 in (535 mm)
<b>Static Weight with operator</b> - Rear	26525 lb (12031 kg)	19080 lb (8655 kg)
- Front	13160 lb (5969 kg)	11260 lb (5107 kg)
- Total	39685 lb (18000 kg)	30340 lb (13762 kg)

**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE ENGAGED**

**AUTOMATIC MODE(Loads based on 2000 engine rpm manual mode performance runs)**  
**DRAWBAR POWER AT SELECTED TRAVEL SPEED SETTINGS**

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)
230.48 (171.87)	28309 (125.92)	3.05 (4.91)	1657	8.4	0.455 (0.277)	15.42 (3.04)	213 (100)	57 (14)	28.92 (97.93)
250.79 (187.01)	24427 (108.66)	3.85 (6.20)	1674	4.9	0.434 (0.264)	16.16 (3.18)	213 (101)	57 (14)	28.92 (97.93)
255.91 (190.83)	22054 (98.10)	4.35 (7.00)	1657	3.8	0.425 (0.258)	16.51 (3.25)	207 (97)	61 (16)	28.91 (97.90)
255.93 (190.85)	20082 (89.33)	4.78 (7.69)	1671	3.3	0.425 (0.259)	16.50 (3.25)	212 (100)	63 (17)	28.93 (97.97)
255.75 (190.71)	18435 (82.00)	5.20 (8.37)	1668	3.0	0.429 (0.261)	16.37 (3.22)	212 (100)	64 (18)	28.93 (97.97)
253.95 (189.37)	16409 (72.99)	5.81 (9.34)	1661	2.5	0.430 (0.261)	16.33 (3.22)	213 (100)	67 (19)	28.92 (97.93)
250.49 (186.79)	14670 (65.25)	6.41 (10.31)	1683	2.2	0.432 (0.263)	16.23 (3.20)	212 (100)	67 (20)	28.92 (97.93)
247.02 (184.20)	13220 (58.80)	7.01 (11.28)	1667	1.9	0.423 (0.257)	16.58 (3.27)	208 (98)	69 (21)	28.92 (97.93)
245.93 (183.39)	12129 (53.95)	7.61 (12.24)	1686	1.8	0.423 (0.257)	16.59 (3.27)	213 (100)	69 (21)	28.91 (97.90)
249.56 (186.10)	11415 (50.77)	8.20 (13.20)	1681	1.6	0.422 (0.257)	16.62 (3.27)	212 (100)	71 (22)	28.90 (97.87)



**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE ENGAGED**

**AUTOMATIC MODE(Loads based on 1750 engine rpm manual mode performance runs)**  
**DRAWBAR POWER AT SELECTED TRAVEL SPEED SETTINGS**

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)
230.99 (172.25)	28306 (125.91)	3.06 (4.92)	1657	8.2	0.453 (0.276)	15.48 (3.05)	213 (100)	57 (14)	28.92 (97.93)
260.80 (194.47)	27091 (120.51)	3.61 (5.81)	1674	6.7	0.442 (0.269)	15.89 (3.13)	213 (100)	60 (15)	28.92 (97.93)
274.61 (204.77)	25812 (114.82)	3.99 (6.42)	1675	5.7	0.432 (0.263)	16.24 (3.20)	212 (100)	62 (17)	28.92 (97.93)
288.39 (215.05)	25392 (112.95)	4.26 (6.86)	1797	5.4	0.449 (0.273)	15.64 (3.08)	214 (101)	64 (18)	28.94 (98.00)
291.04 (217.02)	23967 (106.61)	4.56 (7.33)	1797	4.6	0.440 (0.268)	15.95 (3.14)	215 (101)	65 (18)	28.93 (97.97)
293.64 (218.96)	21726 (96.64)	5.07 (8.15)	1797	3.7	0.435 (0.265)	16.13 (3.18)	213 (100)	67 (20)	28.92 (97.93)
292.48 (218.10)	19846 (88.28)	5.53 (8.89)	1797	3.3	0.438 (0.266)	16.04 (3.16)	213 (101)	68 (20)	28.92 (97.93)
290.46 (216.60)	17944 (79.82)	6.07 (9.77)	1796	2.9	0.441 (0.268)	15.91 (3.13)	214 (101)	68 (20)	28.92 (97.93)
289.49 (215.87)	16577 (73.74)	6.55 (10.54)	1795	2.5	0.444 (0.270)	15.82 (3.12)	216 (102)	68 (20)	28.91 (97.90)
288.99 (215.50)	16216 (72.13)	6.69 (10.76)	1791	2.4	0.447 (0.272)	15.70 (3.09)	216 (102)	68 (20)	28.91 (97.90)
310.90 (231.83)	15353 (68.29)	7.59 (12.21)	1793	2.3	0.435 (0.264)	16.15 (3.18)	218 (103)	70 (21)	28.90 (97.87)
313.03 (233.43)	14408 (64.09)	8.15 (13.12)	1793	2.1	0.429 (0.261)	16.37 (3.22)	217 (103)	70 (21)	28.90 (97.87)

\*Engine in power boost mode

**DRAWBAR PERFORMANCE**  
**BALLASTED- MANUAL MODE - 1750 ENGINE RPM**  
**MAXIMUM POWER AT SELECTED TRAVEL SPEED SETTINGS**

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)
206.91 (154.29)	38377 (170.71)	2.03 (3.26)	1975	14.2	0.573 (0.348)	12.23 (2.41)	194 (90)	51 (11)	28.93 (97.97)
250.84 (187.05)	36507 (162.39)	2.58 (4.15)	1880	7.7	0.492 (0.299)	14.23 (2.80)	200 (93)	52 (11)	28.95 (98.04)
280.84 (209.42)	34972 (155.56)	3.02 (4.85)	1797	5.9	0.458 (0.279)	15.28 (3.01)	214 (101)	53 (12)	28.95 (98.04)
284.77 (212.35)	31523 (140.22)	3.39 (5.46)	1750	4.1	0.450 (0.274)	15.55 (3.06)	212 (100)	54 (12)	28.97 (98.10)
292.92 (218.43)	28749 (127.88)	3.82 (6.15)	1750	3.2	0.439 (0.267)	15.94 (3.14)	213 (100)	55 (13)	28.98 (98.14)
295.50 (220.35)	26438 (117.60)	4.19 (6.74)	1750	2.8	0.436 (0.265)	16.06 (3.16)	213 (100)	57 (14)	28.98 (98.14)
296.43 (221.05)	24376 (108.43)	4.56 (7.34)	1750	2.4	0.434 (0.264)	16.14 (3.18)	213 (100)	57 (14)	28.99 (98.17)
296.92 (221.41)	21898 (97.41)	5.09 (8.18)	1750	2.1	0.432 (0.263)	16.21 (3.19)	214 (101)	57 (14)	28.99 (98.17)
294.90 (219.90)	19719 (87.71)	5.61 (9.03)	1750	1.8	0.434 (0.264)	16.13 (3.18)	213 (101)	57 (14)	28.99 (98.17)
290.86 (216.89)	17788 (79.12)	6.13 (9.87)	1750	1.6	0.441 (0.268)	15.89 (3.13)	216 (102)	57 (14)	28.98 (98.14)
293.66 (218.98)	16545 (73.59)	6.66 (10.71)	1751	1.5	0.436 (0.265)	16.06 (3.16)	214 (101)	57 (14)	28.98 (98.14)
296.25 (220.91)	15483 (68.87)	7.18 (11.55)	1751	1.4	0.432 (0.263)	16.21 (3.19)	215 (101)	57 (14)	28.98 (98.14)
311.60 (232.36)	15197 (67.60)	7.69 (12.38)	1751	1.3	0.429 (0.261)	16.32 (3.21)	217 (103)	59 (15)	28.98 (98.14)
312.55 (233.06)	14279 (63.52)	8.21 (13.20)	1750	1.2	0.429 (0.261)	16.33 (3.22)	217 (103)	59 (15)	28.97 (98.10)

\*Engine in power boost mode

## 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)		
	<b>Standard pump</b>	<b>High flow pump</b>	
	<u>three outlet sets combined</u>		
i) Sustained pressure at compensator cutoff:	2967 psi (205 bar) 2899 psi (200 bar)		
ii) Pump delivery rate at minimum pressure and rated engine speed:	41.6 GPM (157.4 l/min) 60.0 GPM (226.9 l/min)		
iii) Pump delivery rate at maximum hydraulic power:	40.2 GPM (152.2 l/min) 59.7 GPM (226.0 l/min)		
Delivery pressure:	2840 psi (196 bar) 2569 psi (177 bar)		
Power:	66.6 HP (49.7 kW) 89.5 hp (66.7 kW)		
	<u>single outlet set</u>		
i) Sustained pressure at compensator cutoff:	2960 psi (204 bar) 2890 psi (199 bar)		
ii) Pump delivery rate at minimum pressure and rated engine speed:	41.6 GPM (157.3 l/min) 44.9 GPM (170.0 l/min)		
iii) Pump delivery rate at maximum hydraulic power:	42.9 GPM (162.6 l/min) 38.7 GPM (146.6 l/min)		
Delivery pressure:	2327 psi (160 bar) 2170 psi (150 bar)		
Power:	58.3 HP (43.5 kW) 49.0 hp (36.6 kW)		

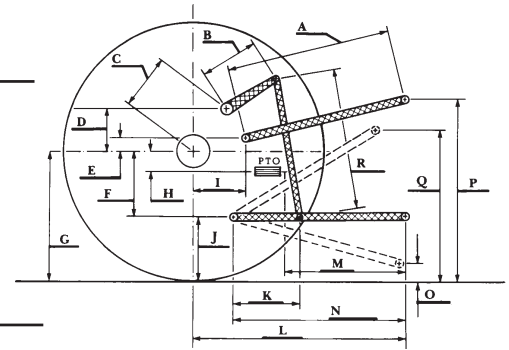
## HITCH DIMENSIONS AS TESTED—NO LOAD

	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

	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)



**NEW HOLLAND T8.420 DIESEL**