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1999

## Nebraska Summary: S350 New Holland TL100

Nebraska Tractor Test Laboratory

University of Nebraska-Lincoln, tractortestlab@unl.edu

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# SUMMARY OF OECD TESTS 1908 and 1916—NEBRASKA SUMMARY 350

## NEW HOLLAND TL 100 DIESEL

### 24 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed (PTO speed 1048 rpm)</b>					
83.1 (62.0)	2495	4.98 (18.85)	0.419 (0.255)	16.70 (3.29)	
<b>Standard Power Take-off speed (1000 rpm)</b>					
81.9 (61.1)	2381	4.79 (18.13)	0.409 (0.249)	17.11 (3.37)	
<b>VARYING POWER AND FUEL CONSUMPTION</b>					
83.1 (62.0)	2495	4.98 (18.85)	0.419 (0.255)	16.70 (3.29)	Air temperature
74.7 (55.7)	2679	4.82 (18.24)	0.452 (0.275)	15.53 (3.06)	64°F (18°C)
57.0 (42.5)	2698	3.87 (14.65)	0.477 (0.290)	14.72 (2.90)	Relative humidity
38.7 (28.9)	2721	2.99 (11.33)	0.542 (0.330)	12.94 (2.55)	65%
19.8 (14.7)	2745	2.21 (8.38)	0.786 (0.478)	8.93 (1.76)	Barometer
--	2769	1.42 (5.36)	--	--	29.3" Hg (99.3 kPa)

Maximum Torque -244.7 lb.-ft. (331.8 Nm) at 1550 rpm  
 Maximum Torque Rise -39.8%  
 Torque rise at 2000 engine rpm -19%

**Location of Test:** Istituto Per La Meccanizzazione Agricola (IMA) Strada delle Cacce, 73-10135 Torino, Italy

**Dates of Test:** August - December, 1999

**Manufacturer:** New Holland Italia S.p.A., Viale delle Nazioni, 55-41100, Modena, Italy and New Holland UK Limited, Cranes Farm Road Basildon, Essex, United Kingdom

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.842 **Fuel weight** 7.01 lbs/gal (0.840 kg/l) **Oil SAE** 15W40 **API service classification** CF-4 **Oil consumption for 10 hours** 0.02 lb (10 gm) **Transmission and hydraulic lubricant** Ambra Multi G **Front axle lubricant** Ambra Multi G

**ENGINE: Make** New Holland Diesel **Type** four cylinder vertical with turbocharger **Serial No.** 513-541141 **Crankshaft** lengthwise **Rated Engine speed** 2500 **Bore and stroke** 4.094" x 4.528" (104 mm x 115 mm) **Compression ratio** 16.5 to 1 **Displacement** 238 cu in (3908 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat

**CHASSIS: Type** 2WD and front wheel assist **Serial No.** 001157966 **Tread width** rear 60.2" (1530 mm) to 83.9" (2130 mm) front: 2WD - 55.6" (1413 mm) to 84.5" (2146 mm), FWA - 51.4" (1305 mm) to 79.3" (2014 mm) **Wheel base** 2WD - 92.2" (2342 mm) FWA - 91.1" (2314 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 0.98 (1.58) second 1.12 (1.80) third 1.43 (2.30) fourth 1.62 (2.61) fifth 2.06 (3.31) sixth 2.29 (3.69) seventh 2.34 (3.77) eighth 2.61 (4.20) ninth 2.95 (4.74) tenth 3.33 (5.36) eleventh 3.35 (5.40) twelfth 3.79 (6.11) thirteenth 4.80 (7.73) fourteenth 5.40 (8.69) fifteenth 5.47 (8.80) sixteenth 6.15 (9.89) seventeenth 6.88 (11.07) eighteenth 7.83 (12.60) nineteenth 7.84 (12.62) twentieth 8.93 (14.38) twenty-first 11.31 (18.20) twenty-second 12.88 (20.73) twenty-third 16.20 (26.07) twenty-fourth 18.45 (29.69) reverse 1.10 (1.77), 1.60 (2.57), 2.30 (3.71), 2.57 (4.13), 3.30 (5.31), 3.73 (6.00), 5.38 (8.66), 6.04 (9.73), 7.70 (12.40), 8.79 (14.14), 12.66 (20.38), 18.14 (29.19) **Clutch** dual dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic

**DRAWBAR PERFORMANCE  
BALLASTED - 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>75% of Pull at Maximum Power Five Hours 13th (3M Lo) Gear</b>									
55.8 (41.6)	4145 (18.44)	5.05 (8.13)	2700	3.7	0.574 (0.349)	12.23 (2.41)	185 (85)	68 (20)	28.9 (98.0)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
8th (1M Hi) Gear									
59.9 (44.7)	9525 (42.38)	2.36 (3.80)	2636	15.0	0.598 (0.364)	11.73 (2.31)	200 (93)	66 (19)	29.5 (100.0)
9th (4S Lo) Gear									
62.8 (46.8)	8910 (39.63)	2.64 (4.25)	2500	11.3	0.559 (0.340)	12.54 (2.47)	199 (93)	66 (19)	29.5 (100.0)
10th (2M Lo) Gear									
66.0 (49.2)	8005 (35.61)	3.09 (4.98)	2500	7.7	0.534 (0.325)	13.10 (2.58)	197 (92)	66 (19)	29.5 (100.0)
11th (4S Hi) Gear									
65.6 (48.9)	7830 (34.83)	3.14 (5.06)	2500	7.4	0.539 (0.328)	12.99 (2.56)	197 (92)	66 (19)	29.5 (100.0)
12th (2M Hi) Gear									
66.2 (49.4)	6910 (30.75)	3.59 (5.78)	2500	6.2	0.536 (0.326)	13.10 (2.58)	194 (90)	66 (19)	29.5 (100.0)
13th (3M Lo) Gear									
67.6 (50.4)	5525 (24.57)	4.59 (7.38)	2500	5.0	0.521 (0.317)	13.45 (2.63)	192 (89)	66 (19)	29.5 (100.0)
14th (1F Lo) Gear									
68.4 (51.0)	4930 (21.93)	5.20 (8.37)	2500	4.6	0.524 (0.319)	13.35 (2.63)	192 (89)	66 (19)	29.5 (100.0)
15th (3M Hi) Gear									
66.8 (49.8)	4740 (21.09)	5.28 (8.50)	2500	4.5	0.538 (0.327)	13.05 (2.57)	192 (89)	66 (19)	29.5 (100.0)
16th (1F Hi) Gear									
68.2 (50.8)	4275 (19.03)	5.98 (9.62)	2500	3.8	0.529 (0.322)	13.25 (2.61)	192 (89)	66 (19)	29.5 (100.0)
17th (4M Lo) Gear									
68.1 (50.8)	3825 (17.02)	6.67 (10.74)	2500	3.6	0.529 (0.322)	13.25 (2.61)	188 (87)	66 (19)	29.5 (100.0)
18th (2F Lo) Gear									
68.5 (51.1)	3350 (14.91)	7.67 (12.34)	2500	3.4	0.526 (0.320)	13.30 (2.62)	185 (85)	66 (19)	29.5 (100.0)
19th (4M Hi) Gear									
67.5 (50.3)	3310 (14.72)	7.64 (12.30)	2500	3.3	0.539 (0.328)	12.99 (2.56)	180 (82)	66 (19)	29.5 (100.0)
20th (2F Hi) Gear									
66.1 (49.3)	2825 (12.56)	8.78 (14.13)	2500	3.1	0.542 (0.330)	12.94 (2.55)	191 (88)	66 (19)	29.5 (100.0)

**Power take-off** 540 rpm at 2199 engine rpm or 1000 rpm at 2381 engine rpm **Unladen tractor mass** 2WD - 8135 lb (3690 kg), FWA - 8795 lb (3990 kg)

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

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. The performance results on this summary were taken from OECD tests conducted under the Code I Test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Reports No. **1908** and **1916**, Nebraska Summary 350, January 10, 2001.

Brent T. Sampson  
Test Engineer

L.L. Bashford  
M.F. Kocher  
R.D. Grisso, Jr.  
Board of Tractor Test Engineers

**TL 100- FWA**

	<b>With Ballast</b>	<b>Without Ballast</b>
<b>TIRES, BALLAST AND WEIGHT</b>		
<b>Rear Tires</b>	-No., size, ply & psi (kPa) Two 480/70R34; **,13 (90)	Two 480/70R34; **,13 (90)
<b>Ballast</b>	-Liquid (total) None	None
	-Cast Iron (total) 440 lb (200 kg)	None
<b>Front Tires</b>	-No., size, ply & psi (kPa) Two 380/70R24; **,23 (160)	Two 380/70R24; **,23 (160)
<b>Ballast</b>	-Liquid (total) None	None
	-Cast Iron (total) 1050 lb (475 kg)	None
<b>Height of Drawbar</b>	19.7 in (500 mm)	19.7 in (500 mm)
<b>Static Weight with Operator</b> - Rear	5755 lb (2610 kg)	5315 lb (2410 kg)
- Front	4695 lb (2130 kg)	3645 lb (1655 kg)
- Total	10450 lb (4740 kg)	8960 lb (4065 kg)

**DRAWBAR PERFORMANCE**  
**BALLASTED - 2WD**  
**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	Temp. °C Air dry bulb	Barom. inch Hg (kPa)
<b>75% of Pull at Maximum Power Five Hours 13th (3M Lo) Gear</b>									
57.4 (42.8)	4325 (19.23)	4.98 (8.01)	2715	4.3	0.572 (0.348)	12.23 (2.41)	192 (89)	61 (16)	28.9 (98.0)

**MAXIMUM POWER IN SELECTED GEARS**

11th (4S Hi) Gear									
58.1 (43.3)	7165 (31.88)	3.04 (4.89)	2667	15.0	0.616 (0.375)	11.37 (2.24)	199 (93)	68 (20)	28.9 (98.0)
12th (2M Hi) Gear									
62.9 (46.9)	7110 (31.64)	3.32 (5.34)	2500	12.3	0.574 (0.349)	12.18 (2.40)	194 (90)	68 (20)	28.9 (98.0)
13th (3M Lo) Gear									
69.9 (52.1)	5790 (25.75)	4.53 (7.29)	2500	5.8	0.515 (0.313)	13.65 (2.69)	194 (90)	68 (20)	28.9 (98.0)
14th (1F Lo) Gear									
70.9 (52.9)	5180 (23.05)	5.13 (8.26)	2500	5.2	0.508 (0.309)	13.81 (2.72)	193 (89)	68 (20)	28.9 (98.0)
15th (3M Hi) Gear									
69.2 (51.6)	5030 (22.37)	5.16 (8.30)	2500	5.1	0.523 (0.318)	13.40 (2.64)	193 (89)	68 (20)	28.9 (98.0)
16th (1F Hi) Gear									
71.5 (53.3)	4565 (20.31)	5.87 (9.45)	2500	4.6	0.503 (0.306)	13.91 (2.74)	191 (88)	68 (20)	28.9 (98.0)
17th (4M Lo) Gear									
70.3 (52.4)	3995 (17.76)	6.60 (10.62)	2500	4.0	0.515 (0.313)	13.60 (2.68)	188 (87)	68 (20)	28.9 (98.0)
18th (2F Lo) Gear									
70.4 (52.5)	3495 (15.55)	7.56 (12.16)	2500	3.6	0.518 (0.315)	13.55 (2.67)	184 (84)	68 (20)	28.9 (98.0)
19th (4M Hi) Gear									
68.5 (51.1)	3400 (15.11)	7.56 (12.17)	2500	3.7	0.538 (0.327)	13.05 (2.57)	182 (83)	68 (20)	28.9 (98.0)
20th (4F Hi) Gear									
71.2 (53.1)	3065 (13.64)	8.71 (14.01)	2500	3.3	0.518 (0.315)	13.55 (2.67)	184 (85)	68 (20)	28.9 (98.0)

**TL 100-2WD**

<b>TIRES, BALLAST AND WEIGHT</b>		<b>With Ballast</b>	<b>Without Ballast</b>
<b>Rear Tires</b>	-No., size, ply & psi (kPa)	Two 480/70R34;**,13 (90)	Two 480/70R34;**,13 (90)
<b>Ballast</b>	-Liquid (total)	None	None
	-Cast Iron (total)	440 lb (200 kg)	None
<b>Front Tires</b>	-No., size, ply & psi (kPa)	Two 7.50-20;8;36 (250)	Two 7.50-20; 8;36 (250)
<b>Ballast</b>	-Liquid (total)	None	None
	-Cast Iron (total)	1050 lb (475 kg)	None
<b>Height of Drawbar</b>		27.6 in (700 mm)	28.0 in (710 mm)
<b>Static Weight with Operator</b>	-Rear	5600 lb (2540 kg)	5160 lb (2340 kg)
	-Front	4190 lb (1900 kg)	3140 lb (1425 kg)
	-Total	9790 lb (4440 kg)	8300 lb (3765 kg)

TRACTOR SOUND LEVEL WITH CAB	FWA dB(A)	2WD dB(A)
At no load in 15th (3M Hi) gear	77.6	77.6
Bystander in 24th (4F Hi) gear	84.9	86.8

**CENTER OF GRAVITY - 2WD**

Horizontal distance forward from centerline of rear wheels	35.0" (890 mm)
Vertical distance above roadway	34.3" (870 mm)
Horizontal distance from center of rear wheel tread	0.3" (7 mm) to the left

**CENTER OF GRAVITY - FWA**

Horizontal distance forward from centerline of rear wheels	37.2" (945 mm)
Vertical distance above roadway	33.5" (850 mm)
Horizontal distance from center of rear wheel tread	0.5" (12 mm) to the left

**TURNING ON A CONCRETE SURFACE (2WD)**

Turning radius	with brake applied right 138" (3.50 m) left 138" (3.50 m)
	without brake right 152" (3.85 m) left 150" (3.80 m)
Turning space radius	with brake applied right 144" (3.65 m) left 142" (3.60 m)
	without brake right 154" (3.90 m) left 150" (3.80 m)

**TURNING ON A CONCRETE SURFACE (FWA)**

Turning radius	with brake applied right 181" (4.60 m) left 177" (4.50 m)
	without brake right 224" (5.70 m) left 219" (5.55 m)
Turning space radius	with brake applied right 185" (4.70 m) left 181" (4.60 m)
	without brake right 228" (5.80 m) left 224" (5.70 m)

**THREE POINT HITCH PERFORMANCE (OECD Static Test)**

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range:	6185 lbs (27.5 kN)
i) Opening pressure of relief valve:	NA
Sustained pressure with relief valve open:	2900 psi (200 bar)
ii) Pump delivery rate at minimum pressure:	14.6 GPM (55.4 l/min)
iii) Pump delivery rate at maximum	
hydraulic power:	10.0 GPM (37.9 l/min)
Delivery pressure:	2320 psi (160 bar)
Power:	13.5 HP (10.1 kW)

**SAE TEST**

inch mm

**OECD TEST**

inch mm

A	27.0	686	27.8	705
B	10.0	255	10.0	255
C	13.0	329	13.0	329
D	11.8	300	11.8	300
E	13.2	335	10.0	255
F	8.1	205	8.1	205
G	29.3	745	30.3	770
H	0.6	15	0.6	15
I	15.7	400	15.7	400
J	21.2	540	22.2	565
K	21.2	540	18.3	465
L	43.3	1100	43.3	1100
M	21.7	550	21.7	550
N	38.0	965	38.0	965
O	8.0	203	7.9	200
P	40.2	1021	46.3	1175
Q	34.2	870	36.2	920
R	25.8	654	24.4	620

**THREE POINT HITCH PERFORMANCE (SAE Static Test)**

Observed Maximum Pressure psi. (bar)	2970 (205)
Location:	hydraulic pump
Hydraulic oil temperature: °F (°C)	144 (62)
Location:	hydraulic sump
Category:	II
Quick attach:	none

System pressure 2675 psi (184 Bar)

Hitch point distance to ground level in. (mm)	8.0 (203)	15.0 (381)	22.0 (559)	29.0 (737)	36.0 (914)
Lift force on frame lb	11006	9783	8937	9009	7961
" " " " " (kN)	(49.4)	(43.5)	(39.8)	(40.5)	(35.4)

**HITCH DIMENSIONS AS TESTED NO LOAD**

