University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

1-1-2000

Test 1918: New Holland TM125 Diesel

Follow this and additional works at: http://digitalcommons.unl.edu/tractormuseumlit

Part of the Applied Mechanics Commons

"Test 1918: New Holland TM125 Diesel" (2000). *Nebraska Tractor Tests.* Paper 281.
http://digitalcommons.unl.edu/tractormuseumlit/281

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

SUMMARY OF OECD TEST 1918 - NEBRASKA SUMMARY 343
NEW HOLLAND TM125 DIESEL
18 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed (PTO speed 1038 rpm)					
105.5 *(78.7)*	2201	6.68 *(25.30)*	0.442 *(0.269)*	15.79 *(3.11)*	
Standard Power Take-off Speed (1001 rpm)					
109.7 *(81.8)*	2121	6.66 *(25.21)*	0.423 *(0.258)*	16.50 *(3.25)*	
Maximum Power (2 hours)					
110.2 *(82.2)*	2060	6.55 *(24.79)*	0.416 *(0.253)*	16.80 *(3.31)*	
VARYING POWER AND FUEL CONSUMPTION					
105.5 *(78.7)*	2201	6.68 *(25.30)*	0.442 *(0.269)*	15.79 *(3.11)*	Air temperature
92.4 *(68.9)*	2265	6.25 *(23.66)*	0.473 *(0.287)*	14.78 *(2.91)*	81°F *(27°C)*
70.0 *(52.2)*	2289	5.25 *(19.88)*	0.523 *(0.318)*	13.35 *(2.63)*	Relative humidity
47.2 *(35.2)*	2318	4.25 *(16.08)*	0.629 *(0.383)*	11.11 *(2.19)*	25%
23.7 *(17.7)*	2337	3.26 *(12.33)*	0.957 *(0.582)*	7.29 *(1.44)*	Barometer
-- --	2357	2.34 *(8.85)*	-- --	-- --	29.9" Hg *(101.1 kPa)*

Maximum Torque - 371.4 lb.-ft. *(503.6 Nm)* at 1301 rpm
Maximum Torque Rise - 47.5%
Torque rise at 1800 engine rpm - 26%

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)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power 8th(2B) Gear									
87.2 *(65.0)*	7890 *(35.1)*	4.14 *(6.66)*	2202	4.9	0.539 *(0.328)*	12.94 *(2.55)*	185 *(85)*	48 *(9)*	30.1 *(101.8)*
75% of Pull at Maximum Power 8th(2B) Gear									
68.1 *(50.8)*	5910 *(26.3)*	4.32 *(6.96)*	2271	3.8	0.600 *(0.365)*	11.65 *(2.30)*	185 *(85)*	48 *(9)*	30.1 *(101.8)*
50% of Pull at Maximum Power 8th(2B) Gear									
46.4 *(34.6)*	3925 *(17.5)*	4.43 *(7.13)*	2301	2.6	0.724 *(0.441)*	9.64 *(1.90)*	185 *(85)*	48 *(9)*	30.0 *(101.7)*
75% of Pull at Reduced Engine Speed 9th(3B) Gear									
68.3 *(50.9)*	5920 *(26.3)*	4.32 *(6.96)*	1893	3.9	0.513 *(0.312)*	13.60 *(2.68)*	183 *(84)*	54 *(12)*	30.0 *(101.7)*
50% of Pull at Reduced Engine Speed 9th(3B) Gear									
46.4 *(34.6)*	3930 *(17.5)*	4.43 *(7.13)*	1917	2.8	0.593 *(0.361)*	11.78 *(2.32)*	181 *(83)*	52 *(11)*	30.0 *(101.7)*

Location of Test: Silsoe Research Institute, Wrest Park, Silsoe, MK45 4HS, United Kingdom

Dates of Test: February- May, 2000

Manufacturer: New Holland UK Ltd., Basildon, Essex, United Kingdom

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.839 **Fuel weight** 6.98 lbs/gal *(0.837 kg/l)* **Oil SAE** 10W30 **API service classification** CF-4 **Transmission and hydraulic lubricant** SAE 10W30 API GL4 **Front axle lubricant** SAE 10W30 API GL4

ENGINE: Make New Holland Diesel **Type** six cylinder vertical with turbocharger **Serial No.** WS830060 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.40" x 5.00" *(111.8 mm x 127.0 mm)* **Compression ratio** 17.5 to 1 **Displacement** 456 cu in *(7480 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 **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: Type front wheel assist **Serial No.** 122091B **Tread width** rear 60.2" *(1530 mm)* to 87.9" *(2232 mm)* front 61.2" *(1555 mm)* to 89.0" *(2261 mm)* **Wheelbase** 93.0" *(2723 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (6) range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 1.53 *(2.46)* second 1.84 *(2.96)* third 2.21 *(3.56)* fourth 2.66 *(4.28)* fifth 3.19 *(5.14)* sixth 3.55 *(5.72)* seventh 3.83 *(6.17)* eighth 4.28 *(6.88)* ninth 5.13 *(8.26)* tenth 6.17 *(9.93)* eleventh 7.43 *(11.95)* twelfth 8.93 *(14.37)* thirteenth 10.08 *(16.22)* fourteenth 12.12 *(19.51)* fifteenth 14.56 *(23.43)* sixteenth 17.51 *(28.18)* seventeenth 21.06 *(33.89)* eighteenth 25.32 *(40.75)* reverse 2.98 *(4.80)*, 3.59 *(5.78)*, 4.31 *(6.94)*, 5.18 *(8.34)*, 6.24 *(10.04)*, 7.50 *(12.07)* **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** single wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1971 engine rpm or 1000 rpm at 2121 engine rpm **Unladen tractor mass** 11765 lb *(5337 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)*	Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
				1st(1A) Gear					
44.0	11870	1.39	2300	15.0	0.753	9.28	181	52	30.0
(32.8)	*(52.8)*	*(2.24)*			*(0.458)*	*(1.83)*	*(83)*	*(11)*	*(101.6)*
				2nd(2A) Gear					
52.2	11510	1.70	2289	12.9	0.688	10.15	183	54	30.0
(38.9)	*(51.2)*	*(2.73)*			*(0.418)*	*(2.00)*	*(84)*	*(12)*	*(101.6)*
				3rd(3A) Gear					
62.4	11265	2.08	2274	10.8	0.631	11.07	181	52	30.0
(46.5)	*(50.1)*	*(3.34)*			*(0.384)*	*(2.18)*	*(83)*	*(11)*	*(101.7)*
				4th(4A) Gear					
74.3	11130	2.50	2258	10.1	0.606	11.52	183	52	30.0
(55.4)	*(49.5)*	*(4.02)*			*(0.369)*	*(2.27)*	*(84)*	*(11)*	*(101.7)*
				5th(5A) Gear					
84.1	10950	2.88	2143	9.1	0.548	12.74	185	52	30.0
(62.7)	*(48.7)*	*(4.64)*			*(0.333)*	*(2.51)*	*(85)*	*(11)*	*(101.7)*
				6th(1B) Gear					
87.6	10610	3.10	2060	8.5	0.523	13.35	187	52	30.0
(65.3)	*(47.2)*	*(4.99)*			*(0.318)*	*(2.63)*	*(86)*	*(11)*	*(101.7)*
				7th(6A) Gear					
86.0	9375	3.44	2065	6.6	0.539	12.94	183	50	30.0
(64.1)	*(41.7)*	*(5.53)*			*(0.328)*	*(2.55)*	*(84)*	*(10)*	*(101.7)*
				8th(2B) Gear					
90.4	8810	3.85	2060	5.7	0.508	13.76	187	48	30.1
(67.4)	*(39.2)*	*(6.19)*			*(0.309)*	*(2.71)*	*(86)*	*(9)*	*(101.8)*
				9th(3B) Gear					
89.3	7150	4.68	2063	4.6	0.513	13.96	187	48	30.1
(66.6)	*(31.8)*	*(7.53)*			*(0.312)*	*(2.68)*	*(86)*	*(9)*	*(101.8)*
				10th(4B) Gear					
88.1	5845	5.65	2054	3.7	0.521	13.60	185	50	30.0
(65.7)	*(26.0)*	*(9.10)*			*(0.317)*	*(2.64)*	*(85)*	*(10)*	*(101.7)*
				11th(5B) Gear					
86.9	4770	6.83	2052	3.2	0.528	13.22	185	50	30.0
(64.8)	*(21.2)*	*(10.99)*			*(0.321)*	*(2.60)*	*(85)*	*(10)*	*(101.7)*
				12th(6B) Gear					
83.0	3775	8.25	2051	2.6	0.549	12.73	185	50	30.0
(61.9)	*(16.8)*	*(13.28)*			*(0.334)*	*(2.51)*	*(85)*	*(10)*	*(101.7)*
				13th(1C) Gear					
88.0	3545	9.31	2047	2.5	0.524	13.33	185	50	30.0
(65.6)	*(15.8)*	*(14.98)*			*(0.319)*	*(2.63)*	*(85)*	*(10)*	*(101.7)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Sound level in 8th (2B) gear	76.0	76.0
At no load in 8th (2B) gear	75.0	75.0
Bystander in 18th (6C) gear	--	82.0

TIRES AND WEIGHT	Tested Without Ballast
Rear tires - No.,size, ply & psi *(kPa)*	Two 18.4R38; **;12*(83)*
Front tires - No.,size, ply & psi *(kPa)*	Two 14.9R28; **;12*(83)*
Height of Drawbar	16.7 in *(430 mm)*
Static Weight with operator - Rear	7185 lb *(3260 kg)*
- Front	4745 lb *(2152 kg)*
- Total	11930 lb *(5412 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. This tractor did not meet the manufacturer's claim of 9755 lbs *(4425 kg)* three point lift capacity without lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1918**, Nebraska Summary 343, January 4, 2001.

Brent T. Sampson
Test Engineer

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

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Disengaged)

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(2B) Gear									
78.0	7530	3.88	2206	9.5	0.585	11.93	187	63	29.9
(58.2)	*(33.5)*	*(6.25)*			*(0.356)*	*(2.35)*	*(86)*	*(17)*	*(101.1)*
75% of Pull at Maximum Power 8th(2B) Gear									
62.6	5635	4.17	2266	5.1	0.629	11.10	185	63	29.9
(46.7)	*(25.1)*	*(6.71)*			*(0.383)*	*(2.19)*	*(85)*	*(17)*	*(101.1)*
50% of Pull at Maximum Power 8th(2B) Gear									
43.2	3775	4.29	2291	3.4	0.750	9.31	185	63	29.9
(32.2)	*(16.8)*	*(6.91)*			*(0.456)*	*(1.83)*	*(85)*	*(17)*	*(101.1)*
75% of Pull at Reduced Engine Speed 9th(3B) Gear									
62.9	5645	4.18	1888	5.1	0.531	13.15	183	63	29.9
(46.9)	*(25.1)*	*(6.72)*			*(0.323)*	*(2.59)*	*(84)*	*(17)*	*(101.1)*
50% of Pull at Reduced Engine Speed 9th(3B) Gear									
43.2	3775	4.29	1907	3.3	0.612	11.42	181	63	29.9
(32.2)	*(16.8)*	*(6.91)*			*(0.372)*	*(2.25)*	*(83)*	*(17)*	*(101.1)*

MAXIMUM POWER IN SELECTED GEARS

1st(1A) Gear									
29.6	8205	1.35	2321	15.0	0.940	7.43	183	61	29.8
(22.1)	*(36.5)*	*(2.18)*			*(0.572)*	*(1.46)*	*(84)*	*(16)*	*(101.0)*
2nd(2A) Gear									
34.9	7800	1.68	2310	12.9	0.870	8.04	183	61	29.8
(26.0)	*(34.7)*	*(2.70)*			*(0.529)*	*(1.58)*	*(84)*	*(16)*	*(101.0)*
3rd(3A) Gear									
41.3	7690	2.01	2300	12.6	0.794	8.80	183	61	29.8
(30.8)	*(34.2)*	*(3.24)*			*(0.483)*	*(1.73)*	*(84)*	*(16)*	*(101.0)*
4th(4A) Gear									
49.3	7665	2.41	2285	12.2	0.736	9.49	185	61	29.8
(36.8)	*(34.1)*	*(3.89)*			*(0.448)*	*(1.87)*	*(85)*	*(16)*	*(101.0)*
5th(5A) Gear									
59.1	7645	2.90	2270	11.9	0.685	10.20	185	61	29.8
(44.1)	*(34.0)*	*(4.67)*			*(0.416)*	*(2.01)*	*(85)*	*(16)*	*(101.0)*
6th(1B) Gear									
66.8	7600	3.30	2265	10.0	0.614	11.38	183	61	29.8
(49.8)	*(33.8)*	*(5.30)*			*(0.373)*	*(2.24)*	*(84)*	*(16)*	*(101.0)*
7th(6A) Gear									
70.7	7500	3.53	2254	10.3	0.644	10.85	183	55	29.9
(52.7)	*(33.4)*	*(5.69)*			*(0.392)*	*(2.14)*	*(84)*	*(13)*	*(101.1)*
8th(2B) Gear									
78.0	7530	3.88	2206	9.5	0.585	11.93	187	63	29.9
(58.2)	*(33.5)*	*(6.25)*			*(0.356)*	*(2.35)*	*(86)*	*(17)*	*(101.1)*
9th(3B) Gear									
86.5	7330	4.43	2056	7.7	0.533	13.10	187	54	29.9
(64.5)	*(32.6)*	*(7.13)*			*(0.324)*	*(2.58)*	*(86)*	*(12)*	*(101.2)*
10th(4B) Gear									
86.6	5955	5.45	2052	5.3	0.525	13.30	185	54	29.9
(64.6)	*(26.5)*	*(8.78)*			*(0.319)*	*(2.62)*	*(85)*	*(12)*	*(101.2)*
11th(5B) Gear									
86.2	4870	6.64	2051	4.1	0.527	13.24	185	54	29.9
(64.3)	*(21.7)*	*(10.68)*			*(0.321)*	*(2.61)*	*(85)*	*(12)*	*(101.2)*
12th(6B) Gear									
83.1	3860	8.08	2056	3.2	0.552	12.64	185	54	29.9
(62.0)	*(17.2)*	*(13.00)*			*(0.336)*	*(2.49)*	*(85)*	*(12)*	*(101.2)*
13th(1C) Gear									
87.2	3585	9.12	2053	2.9	0.526	13.29	185	54	29.9
(65.0)	*(15.9)*	*(14.68)*			*(0.320)*	*(2.62)*	*(85)*	*(12)*	*(101.2)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II		
Quick Attach: None		
Maximum Force Exerted Through Whole Range:	5845 lbs	*(26.0 kN)*
	7215 lbs	*(32.1 kN)*(with lift assist cylinder)
i) Opening pressure of relief valve:	NA	
Sustained pressure of the open relief valve:	2990 psi	*(206 bar)*
ii) Pump delivery rate at minimum pressure:	30.9 GPM	*(116.9 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	25.8 GPM	*(97.7 l/min)*
Delivery pressure:	2610 psi	*(180 bar)*
Power:	39.3 HP	*(29.3 kW)*

SAE Static Test System pressure 2440 psi *(168 Bar)*

Hitch point distance to ground level in. *(mm)*	7.9 *(200)*	14.6 *(370)*	22.4 *(570)*	30.3 *(770)*	36.4 *(925)*
Lift force on frame lb	9915	9670	9395	8605	7840
" " " " " " *(kN)*	*(44.1)*	*(43.0)*	*(41.8)*	*(38.3)*	*(34.9)*

SAE Static Test System pressure 2440 psi *(168 Bar)*
(With (1) lift assist cylinder

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	14.6 *(370)*	22.4 *(570)*	30.3 *(770)*	37.0 *(940)*
Lift force on frame lb	12815	12745	12860	12430	11575
" " " " " " *(kN)*	*(57.0)*	*(56.7)*	*(57.2)*	*(55.3)*	*(51.5)*

ASAE Static Test System pressure 2715 psi *(187 Bar)*

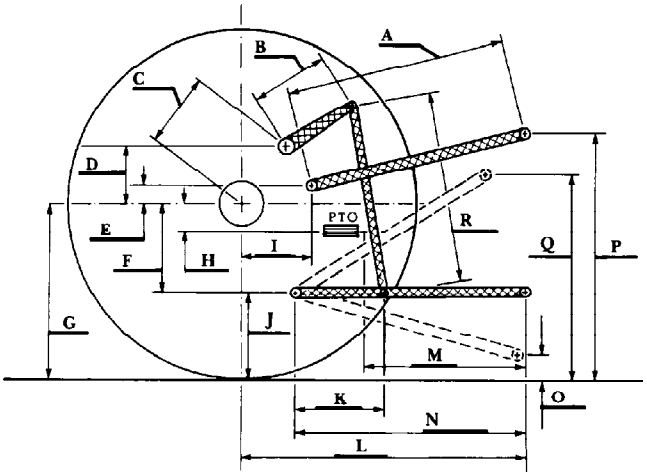
Hitch point distance to ground level in. *(mm)*	7.9 *(200)*	14.6 *(370)*	22.4 *(570)*	30.3 *(770)*	36.4 *(925)*
Lift force on frame lb	11040	10770	10455	9575	8725
" " " " " " *(kN)*	*(49.1)*	*(47.9)*	*(46.5)*	*(42.6)*	*(38.8)*

ASAE Static Test System pressure 2715 psi *(187 Bar)*
(with (1) lift assist cylinder)

Hitch point distance to ground level in. *(mm)*	8.0 *(203)*	14.6 *(370)*	22.4 *(570)*	30.3 *(770)*	37.0 *(940)*
Lift force on frame lb	14250	14185	14320	13825	12880
" " " " " " *(kN)*	*(63.4)*	*(63.1)*	*(63.7)*	*(61.5)*	*(57.3)*

HITCH DIMENSIONS AS TESTED NO LOAD

	OECD test		SAE test	
	inch	*mm*	inch	*mm*
A	29.7	*754*	30.2	*768*
B	9.1	*230*	9.1	*230*
C	15.6	*395*	15.6	*395*
D	14.3	*363*	14.3	*363*
E	8.2	*208*	10.8	*275*
F	9.8	*250*	9.8	*250*
G	32.3	*820*	32.3	*820*
H	0.7	*17*	0.7	*17*
I	17.9	*455*	16.9	*430*
J	22.5	*570*	22.5	*570*
K	17.1	*435*	19.8	*504*
L	47.0	*1194*	47.0	*1194*
M	23.3	*592*	23.3	*592*
N	38.3	*974*	38.3	*974*
O	7.7	*196*	7.9	*200*
P	46.5	*1180*	41.5	*1053*
Q	35.8	*910*	33.5	*850*
R	29.1	*740*	30.7	*780*



Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska Lincoln
Darrell Nelson, Dean and Director