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SUMMARY OF OECD TEST 1834 - NEBRASKA SUMMARY 296
NEW HOLLAND TS110 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1010 rpm)					
98.4 *(73.4)*	2070	5.73 *(21.68)*	0.406 *(0.247)*	17.19 *(3.39)*	
Standard Power Take-off Speed (1000 rpm)					
97.8 *(72.9)*	2049	5.65 *(21.39)*	0.403 *(0.245)*	17.31 *(3.41)*	
VARYING POWER AND FUEL CONSUMPTION					
98.4 *(73.4)*	2070	5.73 *(21.68)*	0.406 *(0.247)*	17.19 *(3.39)*	Air temperature
86.8 *(64.7)*	2148	5.21 *(19.72)*	0.419 *(0.255)*	16.65 *(3.28)*	74°F *(23°C)*
66.0 *(49.2)*	2177	4.27 *(16.15)*	0.452 *(0.275)*	15.46 *(3.05)*	Relative humidity
44.5 *(33.2)*	2197	3.35 *(12.69)*	0.526 *(0.320)*	13.27 *(2.61)*	36%
22.4 *(16.7)*	2215	2.39 *(9.03)*	0.744 *(0.452)*	9.39 *(1.85)*	Barometer
-- --	2233	1.51 *(5.71)*	-- --	-- --	30.1" Hg *(102.0 kPa)*

Maximum Torque - 323.4 lb.-ft. *(438.5 Nm)* at 1348 rpm
Maximum Torque Rise - 29.5%
Torque rise at 1600 engine rpm - 23%

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)*
Maximum Power—12th(2MH) Gear									
82.7 *(61.7)*	7075 *(31.5)*	4.39 *(7.06)*	2072	4.5	0.478 *(0.290)*	14.64 *(2.88)*	185 *(85)*	52 *(11)*	29.6 *(100.2)*
75% of Pull at Maximum Power—12th(2MH) Gear									
65.7 *(49.0)*	5300 *(23.6)*	4.65 *(7.48)*	2173	3.4	0.521 *(0.317)*	13.40 *(2.64)*	185 *(85)*	52 *(11)*	29.6 *(100.2)*
50% of Pull at Maximum Power—12th(2MH) Gear									
44.6 *(33.2)*	3520 *(15.7)*	4.75 *(7.65)*	2197	2.4	0.609 *(0.370)*	11.47 *(2.26)*	185 *(85)*	52 *(11)*	29.6 *(100.2)*
75% of Pull at Reduced Engine Speed—13th(3ML) Gear									
65.9 *(49.1)*	5315 *(23.6)*	4.65 *(7.48)*	1864	3.7	0.485 *(0.295)*	14.40 *(2.84)*	185 *(85)*	54 *(12)*	29.6 *(100.1)*
50% of Pull at Reduced Engine Speed—13th(3ML) Gear									
44.6 *(33.2)*	3520 *(15.7)*	4.75 *(7.64)*	1885	2.6	0.552 *(0.336)*	12.64 *(2.49)*	185 *(84)*	54 *(12)*	29.6 *(100.1)*

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

Dates of Test: August, 1998 - June, 1999

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** CE/SF **Transmission and hydraulic lubricant** SAE 10W30 API GL4 **Front axle lubricant** SAE 10W30 API GL4

ENGINE: Make New Holland Diesel **Type** four cylinder vertical with turbocharger **Serial No.** PD736866 **Crankshaft** lengthwise **Rated engine speed** 2070 **Bore and stroke** 4.40" x 5.00"*(111.8 mm x 127.0 mm)* **Compression ratio** 17.5 to 1 **Displacement** 304 cu in *(4987 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and centrifugal precleaner **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.** 086473B **Tread width** rear 60.2" *(1528 mm)* to 79.8" *(2028 mm)* front 55.3" *(1404 mm)* to 83.3" *(2115 mm)* **Wheelbase** 93.0" *(2362 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph *(km/h)*** first 1.00 *(1.61)* second 1.22 *(1.97)* third 1.47 *(2.36)* fourth 1.80 *(2.89)* fifth 2.09 *(3.37)* sixth 2.52 *(4.05)* seventh 2.57 *(4.13)* eighth 3.05 *(4.91)* ninth 3.08 *(4.95)* tenth 3.68 *(5.93)* eleventh 3.73 *(6.00)* twelfth 4.51 *(7.26)* thirteenth 5.26 *(8.47)* fourteenth 6.10 *(9.81)* fifteenth 6.44 *(10.37)* sixteenth 7.46 *(12.00)* seventeenth 7.66 *(12.33)* eighteenth 8.93 *(14.37)* nineteenth 9.37 *(15.08)* twentieth 10.92 *(17.58)* twenty - first 12.75 *(20.52)* twenty-second 15.60 *(25.10)* twenty-third 18.55 *(29.86)* twenty-fourth 22.69 *(36.52)* reverse 1.04 *(1.67)*, 1.27 *(2.04)*, 1.52 *(2.44)*, 1.86 *(2.99)*, 2.17 *(3.49)*, 2.60 *(4.19)*, 2.65 *(4.27)*, *3.16 (5.08)*, 3.18 *(5.12)*, 3.82 *(6.14)*, 3.86 *(6.21)*, 4.67 *(7.51)*, 5.44 *(8.76)*, 6.30 *(10.14)*, 6.66 *(10.72)*, 7.71 *(12.41)*, 7.92 *(12.75)*, 9.23 *(14.86)*, 9.69 *(15.60)*, 11.29 *(18.17)*, 13.19 *(21.22)*, 16.13 *(25.95)*, 19.19 *(30.88)*, 23.47 *(37.77)* **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1890 engine rpm and 1000 rpm at 2049 engine rpm **Unladen tractor mass** 9795 lb *(4442 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)*
					2nd(1LH) Gear				
31.2 *(23.3)*	10375 *(46.1)*	1.13 *(1.81)*	2204	15.1	0.748 *(0.455)*	9.34 *(1.84)*	185 *(85)*	55 *(13)*	29.6 *(100.2)*
					3rd(2LL) Gear				
37.7 *(28.1)*	10205 *(45.4)*	1.39 *(2.23)*	2199	12.6	0.669 *(0.407)*	10.44 *(2.06)*	184 *(84)*	55 *(13)*	29.6 *(100.2)*
					4th(2LH) Gear				
45.7 *(34.1)*	10160 *(45.2)*	1.69 *(2.72)*	2186	12.5	0.626 *(0.381)*	11.17 *(2.20)*	184 *(84)*	55 *(13)*	29.6 *(100.2)*
					5th(3LL) Gear				
53.5 *(39.9)*	10105 *(45.0)*	1.99 *(3.20)*	2179	11.6	0.580 *(0.353)*	12.03 *(2.37)*	185 *(85)*	54 *(12)*	29.6 *(100.2)*
					6th(1ML) Gear				
63.4 *(47.3)*	9890 *(44.0)*	2.40 *(3.87)*	2164	10.1	0.551 *(0.335)*	12.69 *(2.50)*	186 *(86)*	54 *(12)*	29.6 *(100.2)*
					7th(3LH) Gear				
64.8 *(48.3)*	9845 *(43.8)*	2.47 *(3.97)*	2165	9.7	0.557 *(0.338)*	12.57 *(2.48)*	185 *(85)*	54 *(12)*	29.6 *(100.2)*
					8th(4LL) Gear				
75.4 *(56.2)*	9685 *(43.1)*	2.92 *(4.70)*	2131	8.7	0.519 *(0.316)*	13.45 *(2.65)*	185 *(85)*	54 *(12)*	29.6 *(100.2)*
					9th(1MH) Gear				
76.7 *(57.2)*	9675 *(43.0)*	2.97 *(4.78)*	2134	7.9	0.508 *(0.309)*	13.76 *(2.71)*	185 *(85)*	54 *(12)*	29.6 *(100.2)*
					10th(2ML) Gear				
81.3 *(60.6)*	8615 *(38.3)*	3.54 *(5.69)*	2074	5.9	0.489 *(0.297)*	14.29 *(2.81)*	186 *(86)*	54 *(12)*	29.6 *(100.2)*
					11th(4LH) Gear				
81.7 *(60.9)*	8560 *(38.1)*	3.58 *(5.76)*	2073	5.8	0.496 *(0.302)*	14.06 *(2.77)*	185 *(85)*	52 *(11)*	29.6 *(100.2)*
					12th(2MH) Gear				
82.7 *(61.7)*	7075 *(31.5)*	4.38 *(7.06)*	2072	4.5	0.477 *(0.290)*	14.64 *(2.88)*	185 *(85)*	52 *(11)*	29.6 *(100.2)*
					13th(3ML) Gear				
81.0 *(60.4)*	5885 *(26.2)*	5.16 *(8.31)*	2074	3.8	0.493 *(0.300)*	14.16 *(2.79)*	187 *(86)*	52 *(11)*	29.6 *(100.2)*
					14th(1HL) Gear				
80.9 *(60.3)*	5080 *(22.6)*	5.97 *(9.61)*	2064	3.3	0.489 *(0.298)*	14.28 *(2.81)*	187 *(86)*	50 *(10)*	29.6 *(100.3)*
					15th(3HM) Gear				
81.0 *(60.4)*	4795 *(21.3)*	6.33 *(10.19)*	2069	3.3	0.491 *(0.298)*	14.24 *(2.80)*	187 *(86)*	50 *(10)*	29.6 *(100.3)*
					16th(1HH) Gear				
80.7 *(60.2)*	4115 *(18.3)*	7.36 *(11.84)*	2067	2.8	0.489 *(0.298)*	14.28 *(2.81)*	187 *(86)*	50 *(10)*	29.6 *(100.3)*
					17th(4ML) Gear				
79.7 *(59.4)*	3935 *(17.5)*	7.59 *(12.22)*	2073	2.7	0.496 *(0.302)*	14.06 *(2.77)*	185 *(85)*	52 *(11)*	29.6 *(100.3)*
					18th(2HL) Gear				
77.4 *(57.7)*	3270 *(14.5)*	8.88 *(14.29)*	2073	2.3	0.517 *(0.314)*	13.52 *(2.66)*	185 *(85)*	52 *(11)*	29.6 *(100.3)*
					19th(4MH) Gear				
78.6 *(58.6)*	3155 *(14.0)*	9.34 *(15.03)*	2076	2.2	0.513 *(0.312)*	13.60 *(2.68)*	185 *(85)*	52 *(11)*	29.6 *(100.3)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Disengaged dB(A)	Front Wheel Drive Engaged dB(A)
Maximum Sound level	78.0	78.0
Bystander in 24th(4HH) Gear	83.0	--

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 manufactures claim of 6210 lb *(2817 kg)*, optionally 8700 lb *(3950 kg)*, 3 point hitch lift capacity at 24"*(610 mm)*.The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1834**, Nebraska Summary 296, January 13, 2000.

David L. Morgan
Assistant Director

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 cool-ing med	(°C) Air dry bulb	Barom. inch Hg (kPa)
				Maximum Power—16th(1HH) Gear					
83.1	4295	7.26	2067	3.2	0.476	14.67	187	50	29.3
(62.0)	*(19.1)*	*(11.68)*			*(0.290)*	*(2.89)*	*(86)*	*(10)*	*(99.1)*
				75% of Pull at Maximum Power—16th(1HH) Gear					
65.8	3215	7.67	2169	2.5	0.519	13.45	185	55	29.3
(49.1)	*(14.3)*	*(12.35)*			*(0.316)*	*(2.65)*	*(85)*	*(13)*	*(99.1)*
				50% of Pull at Maximum Power—16th(1HH) Gear					
45.2	2170	7.82	2194	1.9	0.598	11.67	185	55	29.2
(33.7)	*(9.6)*	*(12.58)*			*(0.364)*	*(2.30)*	*(84)*	*(13)*	*(99.0)*
				75% of Pull at Reduced Engine Speed—18th(2HL) Gear					
65.8	3210	7.69	1814	2.5	0.476	14.67	185	55	29.2
(49.1)	*(14.3)*	*(12.37)*			*(0.290)*	*(2.89)*	*(85)*	*(13)*	*(99.0)*
				50% of Pull at Reduced Engine Speed—18th(2HL) Gear					
45.3	2165	7.84	1837	1.8	0.526	13.28	185	55	29.2
(33.8)	*(9.6)*	*(12.62)*			*(0.320)*	*(2.62)*	*(84)*	*(13)*	*(99.0)*
				MAXIMUM POWER IN SELECTED GEARS					
				9th(1MH) Gear					
63.2	8140	2.91	2163	10.3	0.541	12.91	184	55	29.2
(47.1)	*(36.2)*	*(4.68)*			*(0.329)*	*(2.54)*	*(84)*	*(13)*	*(98.8)*
				10th(2ML) Gear					
75.4	8070	3.50	2137	8.7	0.513	13.60	184	55	29.2
(56.2)	*(35.9)*	*(5.64)*			*(0.312)*	*(2.68)*	*(84)*	*(13)*	*(98.8)*
				11th(4LH) Gear					
75.8	8095	3.51	2121	8.9	0.510	13.71	187	57	29.2
(56.5)	*(36.0)*	*(5.65)*			*(0.310)*	*(2.70)*	*(86)*	*(14)*	*(98.9)*
				12th(2MH) Gear					
81.9	7170	4.28	2073	5.8	0.483	14.47	185	52	29.3
(61.1)	*(31.9)*	*(6.90)*			*(0.294)*	*(2.85)*	*(85)*	*(11)*	*(99.1)*
				13th(3ML) Gear					
82.1	6075	5.07	2069	4.6	0.485	14.39	186	50	29.3
(61.2)	*(27.0)*	*(8.15)*			*(0.295)*	*(2.83)*	*(86)*	*(10)*	*(99.1)*
				14th(1HL) Gear					
82.7	5240	5.92	2077	3.9	0.483	14.47	185	50	29.3
(61.7)	*(23.3)*	*(9.53)*			*(0.294)*	*(2.85)*	*(85)*	*(10)*	*(99.1)*
				15th(3MH) Gear					
82.6	4940	6.27	2074	3.7	0.478	14.62	185	52	29.3
(61.6)	*(22.0)*	*(10.09)*			*(0.291)*	*(2.88)*	*(85)*	*(11)*	*(99.1)*
				16th(1HH) Gear					
83.1	4295	7.26	2067	3.2	0.476	14.67	187	50	29.3
(62.0)	*(19.1)*	*(11.68)*			*(0.290)*	*(2.89)*	*(86)*	*(10)*	*(99.1)*
				17th(4ML) Gear					
82.9	4145	7.50	2073	3.1	0.476	14.67	185	52	29.3
(61.8)	*(18.4)*	*(12.06)*			*(0.290)*	*(2.89)*	*(85)*	*(11)*	*(99.1)*
				18th(2HL) Gear					
81.7	3490	8.78	2074	2.6	0.482	14.49	186	52	29.3
(60.9)	*(15.5)*	*(14.12)*			*(0.293)*	*(2.85)*	*(86)*	*(11)*	*(99.1)*
				19th(4MH) Gear					
81.9	3335	9.21	2072	2.7	0.493	14.16	185	52	29.3
(61.1)	*(14.8)*	*(14.81)*			*(0.300)*	*(2.79)*	*(85)*	*(11)*	*(99.1)*

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; **;15*(103)*
Height of Drawbar	21.3 in *(540 mm)*
Static Weight with operator - Rear	6170 lb *(2799 kg)*
- Front	3790 lb *(1718 kg)*
- Total	9960 lb *(4517 kg)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

			with additional assistor ram
CATEGORY: II			
Quick Attach: None			
Maximum Force Exerted Through Whole Range:	5015 lbs	*(22.3 kN)*	6520 lbs *(29.0 kN)*
i) Opening pressure of relief valve:	NA		
Sustained pressure of the open relief valve:	2670 psi	*(184 bar)*	
ii) Pump delivery rate at minimum pressure:	18.3 GPM	*(69.3 l/min)*	
iii) Pump delivery rate at maximum hydraulic power:	16.2 GPM	*(61.3 l/min)*	
Delivery pressure:	2465 psi	*(170 bar)*	
Power:	23.3 HP	*(17.37 kW)*	

SAE Static Test—System pressure 2290 psi *(158 Bar)*
(with(1) 45 mm lift assist cylinder)

Hitch point distance to ground level in. *(mm)*	7.8 *(197)*	14.2 *(361)*	20.1 *(511)*	28.0 *(711)*	36.3 *(921)*
Lift force on frame lb	7485	7395	6970	6225	5485
" " " " " " *(kN)*	*(33.3)*	*(32.9)*	*(31.0)*	*(27.7)*	*(24.4)*

SAE Static Test—System pressure 2290 psi *(158 Bar)*
(with(2) 45 mm lift assist cylinders)

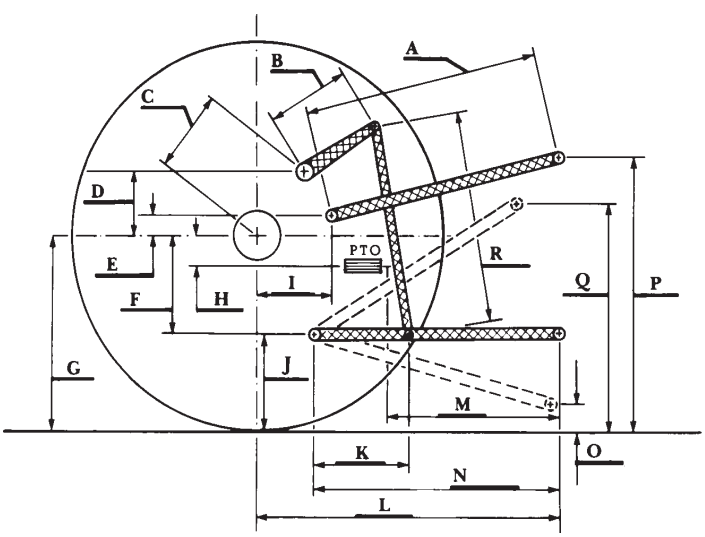
Hitch point distance to ground level in. *(mm)*	7.8 *(197)*	14.2 *(361)*	20.1 *(511)*	28.0 *(711)*	36.3 *(921)*
Lift force on frame lb	10005	9690	9260	8140	7015
" " " " " " *(kN)*	*(44.5)*	*(43.1)*	*(41.2)*	*(36.2)*	*(31.2)*

ASAE Static Test—System pressure 2555 psi *(176 Bar)*
(with(1) 45 mm lift assist cylinder)

Hitch point distance to ground level in. *(mm)*	7.8 *(197)*	14.2 *(361)*	20.1 *(511)*	28.0 *(711)*	36.3 *(921)*
Lift force on frame lb	8340	8250	7755	6925	6115
" " " " " " *(kN)*	*(37.1)*	*(36.7)*	*(34.5)*	*(30.8)*	*(27.2)*

ASAE Static Test—System pressure 2555 psi *(176 Bar)*
(with(2) 45 mm lift assist cylinders)

Hitch point distance to ground level in. *(mm)*	7.8 *(197)*	14.2 *(361)*	20.1 *(511)*	28.0 *(711)*	36.3 *(921)*
Lift force on frame lb	11150	10790	10320	9060	7800
" " " " " " *(kN)*	*(49.6)*	*(48.0)*	*(45.9)*	*(40.3)*	*(34.7)*



HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD Test		SAE/ASAE Test	
	inch	*mm*	inch	*mm*
A	28.3	*720*	28.3	*670*
B	10.0	*254*	10.0	*254*
C	14.0	*356*	14.0	*356*
D	13.4	*341*	13.4	*341*
E	5.9	*149*	5.9	*149*
F	9.0	*229*	9.0	*229*
G	32.3	*820*	29.1	*740*
H	1.9	*47*	1.9	*47*
I	12.8	*325*	12.8	*325*
J	23.3	*591*	20.1	*511*
K	18.3	*466*	20.5	*520*
L	40.0	*1017*	40.0	*1017*
M	22.0	*560*	22.0	*560*
N	36.0	*915*	36.0	*915*
O	7.7	*196*	7.8	*197*
P	47.3	*1201*	39.1	*994*
Q	33.8	*859*	31.9	*811*
R	33.3	*820*	32.6	*830*

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