2012

Test 2053: New Holland TS6.110

Nebraska Tractor Test Lab
University of Nebraska-Lincoln, tractortestlab@unl.edu

NEBRASKA OECD TRACTOR TEST 2053–SUMMARY 866
NEW HOLLAND TS6.110 DIESEL
8 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—1074 rpm)					
92.05 *(68.64)*	2200	6.49 *(24.58)*	0.494 *(0.301)*	14.18 *(2.79)*	
Standard Power Take-off Speed (1000 rpm)					
94.07 *(70.15)*	2049	6.32 *(23.91)*	0.471 *(0.286)*	14.89 *(2.93)*	
Maximum Power (1 hour)					
94.17 *(70.22)*	1801	5.93 *(22.45)*	0.441 *(0.268)*	15.88 *(3.13)*	
VARYING POWER AND FUEL CONSUMPTION					
92.05 *(68.64)*	2200	6.49 *(24.58)*	0.494 *(0.301)*	14.18 *(2.79)*	Air temperature
81.80 *(61.00)*	2293	5.99 *(22.68)*	0.513 *(0.312)*	13.66 *(2.69)*	73°F *(23°C)*
62.90 *(46.90)*	2353	5.18 *(19.61)*	0.577 *(0.351)*	12.14 *(2.39)*	Relative humidity
42.00 *(31.32)*	2362	4.00 *(15.13)*	0.667 *(0.406)*	10.51 *(2.07)*	16%
21.10 *(15.73)*	2368	2.83 *(10.70)*	0.938 *(0.571)*	7.47 *(1.47)*	Barometer
1.50 *(1.12)*	2401	2.01 *(7.61)*	9.393 *(5.714)*	0.75 *(0.15)*	28.98 Hg *(98.14 kPa)*

Maximum torque - 374 lb.-ft. *(507 Nm)* at 1051 rpm
Maximum torque rise - 70.3%
Torque rise at 1760 engine rpm - 28%
Power increase at 1800- engine rpm- 2.3%

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—5th (H1) Gear									
81.30 *(60.63)*	5205 *(23.15)*	5.86 *(9.42)*	2200	7.4	0.564 *(0.343)*	12.43 *(2.45)*	184 *(84)*	58 *(14)*	28.78 *(97.46)*
75% of Pull at Maximum Power—5th (H1) Gear									
66.03 *(49.24)*	3946 *(17.55)*	6.28 *(10.10)*	2314	5.6	0.618 *(0.376)*	11.34 *(2.23)*	184 *(84)*	59 *(15)*	28.70 *(97.19)*
50% of Pull at Maximum Power—5th (H1) Gear									
45.67 *(34.05)*	2622 *(11.66)*	6.53 *(10.51)*	2361	3.7	0.702 *(0.427)*	9.98 *(1.97)*	184 *(84)*	59 *(15)*	28.69 *(97.16)*
75% of Pull at Reduced Engine Speed—6th (H2) Gear									
65.93 *(49.16)*	3981 *(17.71)*	6.21 *(9.99)*	1485	5.5	0.464 *(0.282)*	15.12 *(2.98)*	181 *(83)*	58 *(14)*	28.69 *(97.16)*
50% of Pull at Reduced Engine Speed—6th (H2) Gear									
45.57 *(33.98)*	2604 *(11.58)*	6.57 *(10.57)*	1539	3.6	0.508 *(0.309)*	13.79 *(2.72)*	180 *(82)*	58 *(14)*	28.69 *(97.16)*

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832
Dates of tests: December 4-6, 2012

Manufacturer: CNH De Mexico, Queretaro Mexico

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8417 **Fuel weight** 7.008 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W40 **API service classification** CI-4 **Transmission and hydraulic lubricant** New Holland M2C134D fluid **Front axle lubricant** New Holland M2C134D fluid **Total time engine was operated** 13.5 hours

ENGINE: Make F.P.T NEF series Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler **Serial No.** 990034 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.094" x 5.197" *(104.0 mm x 132.0 mm)* **Compression ratio** 17.5 to 1 **Displacement** 274 cu in *(4485 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** one thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 44.1 - 46.8 lb/h *(20.0 - 21.2 kg/h)* **High idle:** 2350 - 2450 rpm **Turbo boost:** nominal 13.8- 16.7 psi *(95 - 115 kPa)* as measured 15.3 psi*(105 kPa)*

CHASSIS: Type front wheel assist **Serial No.** NH000453M **Tread width** rear 64.0" *(1626 mm)* to 80.0" *(2032 mm)* front 64.0" *(1626 mm)* to 80.0" *(2032 mm)* **Wheelbase** 99.2" *(2522 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph *(km/h)*** first 1.67 *(2.68)* second 2.56 *(4.12)* third 3.48 *(5.60)* fourth 4.83 *(7.77)* fifth 6.14 *(9.88)* sixth 9.45 *(15.21)* seventh 12.83 *(20.65)* eighth 17.82 *(28.68)* reverse 1.72 (2.77), 2.65 *(4.26)*, 3.60 *(5.79)*, 5.00 *(8.04)*, 6.35 *(10.22)*, 9.77 *(15.73)*, 13.27 *(21.36)*, 18.43 *(29.66)* **Clutch** single dry disc operated by foot pedal **Brakes** single wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1890 engine rpm or 1000 rpm at 2049 engine rpm **Unladen tractor mass** 9665 lb *(4384 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)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Temp.°F *(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
					3rd(L3)Gear				
64.54 *(48.13)*	7624 *(33.91)*	3.18 *(5.11)*	2293	14.9	0.661 *(0.402)*	10.60 *(2.09)*	184 *(84)*	60 *(16)*	28.72 *(97.26)*
					4th(L4)Gear				
78.18 *(58.30)*	6618 *(29.44)*	4.43 *(7.13)*	2200	10.9	0.586 *(0.356)*	11.97 *(2.36)*	184 *(84)*	61 *(16)*	28.74 *(97.33)*
					5th(H1)Gear				
81.30 *(60.63)*	5205 *(23.15)*	5.86 *(9.42)*	2200	7.4	0.564 *(0.343)*	12.43 *(2.45)*	184 *(84)*	58 *(14)*	28.78 *(97.46)*
					6th(H2)Gear				
81.65 *(60.89)*	3282 *(14.60)*	9.33 *(15.02)*	2200	4.3	0.559 *(0.340)*	12.54 *(2.47)*	184 *(84)*	60 *(16)*	28.77 *(97.43)*

UNBALLASTED - FRONT DRIVE ENGAGED-1800 RPM

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	Temp.°F *(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
					3rd(L3)Gear				
64.56 *(48.14)*	7632 *(33.95)*	3.17 *(5.10)*	2292	14.9	0.658 *(0.400)*	10.65 *(2.10)*	184 *(84)*	61 *(16)*	28.72 *(97.26)*
					4th (L4)Gear				
78.32 *(58.40)*	6859 *(30.51)*	4.28 *(6.89)*	2150	11.9	0.581 *(0.353)*	12.07 *(2.38)*	184 *(84)*	61 *(16)*	28.74 *(97.33)*
					5th (H1)Gear				
82.49 *(61.51)*	5742 *(25.54)*	5.39 *(8.67)*	2050	8.5	0.541 *(0.329)*	12.96 *(2.55)*	183 *(84)*	60 *(15)*	28.77 *(97.43)*
					6th (H2)Gear				
84.05 *(62.67)*	4193 *(18.65)*	7.52 *(12.09)*	1801	5.6	0.499 *(0.303)*	14.05 *(2.77)*	182 *(83)*	61 *(16)*	28.76 *(97.39)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
At no load in 4th (4L) gear	79.7	79.7
Bystander in 8th (4H) gear		89.6

TIRES AND WEIGHT	Tested Without Ballast
Rear Tires - No., size, ply & psi(*kPa*)	Two 18.4-34;8;16(*110*)
Front Tires - No., size, ply & psi(*kPa*)	Two 14.9-24;8;16(*110*)
Height of Drawbar	24.0 in (*610 mm*)
Static Weight with operator - Rear	5830 lb (*2644 kg*)
- Front	4010 lb (*1819 kg*)
- Total	9840 lb (*4463 kg*)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

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 implement flow claim of 22 GPM *(83 L/min)*. For the maximum power tests the fuel temperature at the fuel pump return was maintained at 153°F *(67°C)*. 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 and correct report of official Tractor Test No. **2053**, Nebraska Summary 866, December 21, 2012.

Roger M. Hoy
Director

M.R. Riley
P.J. Jasa
J.D. Luck
Board of Tractor Test Engineers

HYDRAULIC PERFORMANCE

CATEGORY: II
Quick Attach: None
OECD Static test
Maximum force exerted through whole range: 3096 lbs *(13.77 kN)*
4608 lbs *(20.50 kN)*(1 external lift cylinder)
6174 lbs *(27.46 kN)*(2 external lift cylinders)

	Single pump system	Two pump system
	two outlet sets combined	
i) Sustained pressure of the open relief valve:	2612 psi *(180 bar)*	2413 psi *(166 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	13.3 GPM *(50.4 l/min)*	20.2 GPM *(76.5 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	12.9 GPM *(48.9 l/min)*	17.4 GPM *(65.9 l/min)*
Delivery pressure:	2072 psi *(143 bar)*	1725 psi *(119 bar)*
Power:	15.6 HP *(11.6 kW)*	17.5 HP *(13.1 kW)*
	single outlet set	
i) Sustained pressure of the open relief valve:	2616 psi *(180 bar)*	2431 psi *(168 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	13.3 GPM *(50.2 l/min)*	16.4 GPM *(61.9 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	12.4 GPM *(47.1 l/min)*	15.5 GPM *(58.7 l/min)*
Delivery pressure:	2052 psi *(141 bar)*	1773 psi *(122 bar)*
Power:	14.9 HP *(11.1 kW)*	16.0 HP *(12.0 kW)*

THREE POINT HITCH PERFORMANCE(SAE Static test)

Observed maximum pressure psi. *(bar)* 2480 *(171)*
Location: lift cylinder
Hydraulic oil temperature: °F *(°C)* 145 *(63)*
Location: pump inlet
Category: II
Quick attach: none

System pressure 2210 psi *(152 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	4374	4244	4127	4257	3735
" " " " " " *(kN)*	*(19.5)*	*(18.9)*	*(18.4)*	*(18.9)*	*(16.6)*

One external lift cylinder

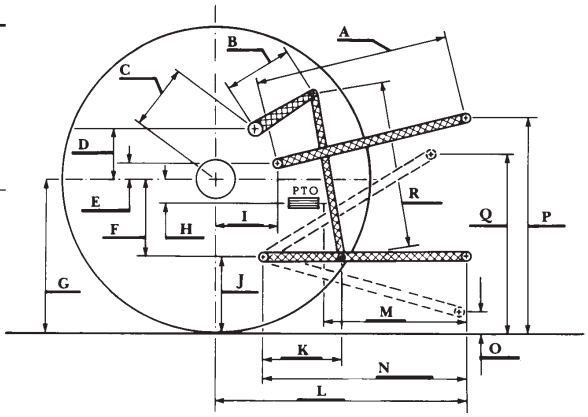
System pressure 2210 psi *(152 Bar)*

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	6764	6444	6174	6300	5499
" " " " " " *(kN)*	*(30.1)*	*(28.7)*	*(27.5)*	*(28.0)*	*(24.5)*

Two external lift cylinders

System pressure 2210 psi *(152 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	9270	8622	8199	8361	7326
" " " " " " *(kN)*	*(41.2)*	*(38.4)*	*(36.5)*	*(37.2)*	*(32.6)*



HITCH DIMENSIONS AS TESTED—NO LOAD

	SAE Test		OECD Test	
	inch	*mm*	inch	*mm*
A	27.7	*705*	28.5	*724*
B	9.8	*250*	9.8	*250*
C	14.1	*357*	14.1	*357*
D	13.5	*342*	13.5	*342*
E	8.1	*205*	8.1	*205*
F	9.0	*229*	9.0	*229*
G	30.3	*770*	30.3	*770*
H	0.4	*10*	0.4	*10*
I	12.7	*323*	12.7	*323*
J	21.3	*541*	21.3	*541*
K	18.1	*460*	18.1	*460*
L	40.8	*1037*	40.8	*1037*
M	22.9	*581*	22.9	*581*
N	36.6	*930*	36.6	*930*
O	8.0	*203*	8.0	*203*
P	40.3	*1024*	45.3	*1151*
Q	34.0	*864*	34.0	*864*
R	32.5	*826*	32.5	*826*

NEW HOLLAND TS6.110 DIESEL

Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln