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2010

## Test 1981: New Holland TS6020

Nebraska Tractor Test Laboratory

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# NEBRASKA TRACTOR TEST 1981

## NEW HOLLAND TS6020 DIESEL

### 8 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
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#### MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—(PTO speed—628 rpm)					
94.58 (70.53)	2199	6.48 (24.54)	0.480 (0.292)	14.59 (2.87)	
Maximum Power(1 Hour)					
96.32 (71.82)	1949	6.14 (23.25)	0.446 (0.271)	15.68 (3.09)	
Standard Power Take-off Speed(540 rpm)					
95.77 (71.41)	1887	6.05 (22.91)	0.442 (0.269)	15.82 (3.12)	

#### VARYING POWER AND FUEL CONSUMPTION

94.58 (70.53)	2199	6.48 (24.54)	0.480 (0.292)	14.59 (2.87)	Air temperature
84.78 (63.22)	2317	6.06 (22.94)	0.500 (0.304)	13.99 (2.76)	74°F (23°C)
63.30 (47.20)	2308	4.90 (18.53)	0.541 (0.329)	12.93 (2.55)	Relative humidity
42.81 (31.92)	2340	3.74 (14.16)	0.612 (0.372)	11.44 (2.25)	18%
21.67 (16.16)	2370	2.71 (10.24)	0.874 (0.532)	8.01 (1.58)	Barometer
1.93 (1.44)	2416	1.99 (7.55)	7.247 (4.408)	0.97 (0.19)	28.67"Hg (97.09kPa)

Maximum Torque - 368 lb.-ft. (499 Nm) at 1001 rpm  
 Maximum Torque rise - 63.4%  
 Torque rise at 1800 rpm - 23%

#### TRACTOR SOUND LEVEL WITHOUT CAB

	dB(A)
At no load in 4th (4L) gear	93.2
Bystander in 8th (8H) gear	88.5

#### TIRES AND WEIGHT

**Rear Tires**—No., size, ply & psi (kPa)  
**Front Tires**—No., size, ply & psi (kPa)  
**Height of Drawbar**  
**Static Weight with operator**—Rear  
     — Front  
     — Total

#### Tested Without Ballast

Two 18.4-30; 8:16 (110)  
 Two 10.00-16; 8: 32 (220)  
 18.0 in (430 mm)  
 5040 lb (2286 kg)  
 2700 lb (1225 kg)  
 7740 lb (3511 kg)

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

**Dates of tests:** December 6-13, 2010

**Manufacturer:** CNH America LLC, 700 State Street, Racine, Wi. 53404

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8402 Fuel weight 6.996 lbs/gal (0.838 kg/l) Oil SAE 15W40 API service classification CI-4 Transmission and hydraulic lubricant New Holland M2C134D fluid Total time engine was operated 12.5 hours

**ENGINE:** Make F.P.T NEF series Diesel Type four cylinder vertical with turbocharger and air to air intercooler Serial No. 685609 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 - 46.7 lb/h (20.0 - 21.2 kg/h) High idle: 2350 - 2450 rpm Turbo boost: nominal 15.2 - 18.1 psi (105 - 125 kPa) as measured 16.5 psi (114 kPa)

**CHASSIS:** Type Standard Serial No. N20000M Tread width rear 64.0" (1626 mm) to 80.0" (2032 mm) front 56.0" (1422 mm) to 80.0" (2032 mm) Wheelbase 99.2" (2520 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio Nominal travel speeds mph (km/h) first 1.70 (2.73) second 2.12 (3.41) third 3.70 (5.95) fourth 5.09 (8.19) fifth 6.08 (9.79) sixth 7.59 (12.22) seventh 13.30 (21.41) eighth 18.10 (29.13) reverse 2.48 (3.99), 8.75 (14.08) 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 7565 lb (3431 kg)

## 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)

	<u>Single pump system</u>	<u>Two pump system</u>
	<u>two outlet sets combined</u>	
i) Sustained pressure of the open reliefvalve:	2754 psi (190 bar)	2652 psi (183 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	13.4 GPM (50.8 l/min)	18.8 GPM (71.2 l/min)
iii) Pump delivery rate at maximum hydraulic power:	11.2 GPM (42.3 l/min)	17.2 GPM (65.1 l/min)
Delivery pressure:	2553 psi (176 bar)	1881 psi (130 bar)
Power:	16.6 HP (12.4 kW)	18.9 HP (14.1 kW)

	<u>single outlet set</u>	
i) Sustained pressure of the open reliefvalve:	2748 psi (190 bar)	2657 psi (183 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	13.4 GPM (50.8 l/min)	15.1 GPM (57.3 l/min)
iii) Pump delivery rate at maximum hydraulic power:	11.9 GPM (45.2 l/min)	14.4 GPM (54.3 l/min)
Delivery pressure:	2456 psi (169 bar)	1860 psi (128 bar)
Power:	17.1 HP (12.8 kW)	15.6 HP (11.6 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 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 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)

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

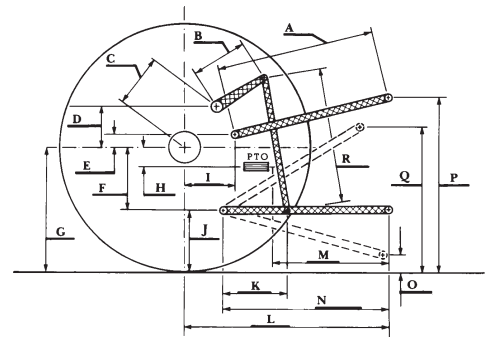
**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor did not meet the manufacturer's claim of 22.0 GPM (83 lpm) hydraulic flow with the additional optional pump. For the maximum power tests, the fuel temperature at the primary filter was maintained at 118°F (48°C).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1981**, January 18, 2011.

Roger M. Hoy  
 Director

M.F. Kocher  
 D.R. Keshwani  
 J.A. Smith  
 Board of Tractor Test Engineers

	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



**HITCH DIMENSIONS AS TESTED - NO LOAD**



**New Holland TS6020 Diesel**  
 Institute of Agriculture and Natural Resources  
 University of Nebraska-Lincoln