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Test 1854: John Deere 4520 Ehydro Diesel Hydrostatic

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NEBRASKA TRACTOR TEST 1854
JOHN DEERE 4520 EHYDRO DIESEL HYDROSTATIC

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—540 rpm)					
46.58 *(34.73)*	2398	3.00 *(11.37)*	0.455 *(0.277)*	15.51 *(3.06)*	
Standard Power Take-off Speed - (540 rpm)					
46.58 *(34.73)*	2398	3.00 *(11.37)*	0.455 *(0.277)*	15.51 *(3.06)*	
VARYING POWER AND FUEL CONSUMPTION					
46.58 *(34.73)*	2398	3.00 *(11.37)*	0.455 *(0.277)*	15.51 *(3.06)*	Air temperature
41.54 *(30.97)*	2520	2.82 *(10.68)*	0.479 *(0.291)*	14.73 *(2.90)*	75°F *(24°C)*
31.69 *(23.63)*	2550	2.31 *(8.75)*	0.514 *(0.313)*	13.72 *(2.70)*	Relative humidity
21.14 *(15.76)*	2569	1.79 *(6.76)*	0.596 *(0.363)*	11.84 *(2.33)*	74%
10.81 *(8.06)*	2593	1.35 *(5.10)*	0.879 *(0.534)*	8.03 *(1.58)*	Barometer
0.85 *(0.63)*	2627	0.95 *(3.59)*	7.925 *(4.821)*	0.89 *(0.18)*	28.76"Hg *(97.39 kPa)*

Maximum Torque 135 lb.-ft. *(183 Nm)* at 1500 rpm
Maximum Torque Rise - 32.0%
Torque rise at 1900 rpm - 19%

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
At no load in B range-speed setting 4.7 mph *(7.5 kph)*	86.1	85.8
Transport speed - no load - C range		86.2
Bystander in C range		77.5

TIRES AND WEIGHT	Tested Without Ballast
Rear Tires–No., size, ply & psi *(kPa)*	Two 17.5L-24; 8; 20 *(135)*
Front Tires–No., size, ply & psi *(kPa)*	Two 10-16.5; 6; 15 *(105)*
Height of Drawbar	15.5 in *(395 mm)*
Static Weight with operator– Rear	2390 lb *(1084 kg)*
– Front	1640 lb *(744 kg)*
– Total	4030 lb *(1828 kg)*

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832
Dates of tests: August 31-September 2, 2005

Manufacturer: John Deere Commercial Products Inc., 700 Horizon South Parkway, Grovetown Ga. USA, 30813

FUEL, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8473 **Fuel weight** 7.055 lbs/gal *(0.846 kg/l)* **Oil SAE** 15W40 **API service classification** CG-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard Fluid **Total time engine was operated** 5.5 hours

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger **Serial No.** *PE4024T025407* **Crankshaft** lengthwise **Rated engine speed** 2400 **Bore and stroke** 3.386" x 4.134" *(86.0 mm x 105.0 mm)* **Compression ratio** 20.5 to 1 **Displacement** 149 cu in *(2440 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** one paper element and one polyester felt element **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** horizontal **Cooling medium temperature control** one thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 20.2 - 22.3 lb/h *(9.2 - 10.1 kg/h)* **High idle:** 2550 - 2650 rpm **Turbo boost:** nominal 8.0 - 10.9 psi *(55 - 75 kPa)* as measured 9.8 psi *(67 kPa)*

CHASSIS: Type Front wheel assist **Serial No.** *LV4520H250007* **Tread width** rear 51.3" *(1304 mm)* to 74.8" *(1900 mm)* front 53.1" *(1349 mm)* to 56.7" *(1440 mm)* **Wheelbase** 71.5" *(1816 mm)* **Hydraulic control system** direct engine drive **Transmission** Hydrostatic. Infinitely variable within the ranges shown. The transmission has 3 mechanical ranges **Nominal travel speeds mph *(km/h)*** A -0-3.7*(6.0)*, B- 0-6.6*(10.7)*, C -0-15.5*(25.0)* reverse A-0-3.7*(6.0)*, B-0-6.6*(10.7)*, C-0-15.5*(25.0)* **Clutch** none - travel speed is electronically controlled by foot pedal **Brakes** single wet disc mechanically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2395 engine rpm **Unladen tractor mass** 3855 lb *(1749 kg)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: I		
Quick Attach: None		
Maximum Force Exerted Through Whole Range:	2523 lbs	*(11.2 kN)*(at 24" behind link ends)
	2821 lbs	*(15.3 kN)*(at lift link ends)
i) Opening pressure of relief valve:	NA	
Sustained pressure of the open relief valve:	2606 psi	*(180 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	10.8 GPM	*(40.9 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	9.3 GPM	*(35.2 l/min)*
Delivery pressure:	2082 psi	*(144 bar)*
Power:	11.3 HP	*(8.4 kW)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi.*(bar)*	2516 *(173)*
Location:	hydraulic service port
Hydraulic oil temperature: °F *(°C)*	158 *(70)*
Location:	hydraulic sump
Category:	II
Quick attach:	none

SAE Static Test—System pressure 2165 psi *(149 Bar)*

Hitch point distance to ground level in. *(mm)*	8.1 *(205)*	13.7 *(349)*	20.0 *(509)*	26.9 *(684)*	32.1 *(816)*
Lift force on frame lb	2961	3050	3021	2833	2581
" " " " " " *(kN)*	*(13.2)*	*(13.6)*	*(13.4)*	*(11.6)*	*(11.5)*

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 claims of 3130 lb *(1423 kg)* lift capacity at ball ends nor implement pump flow of 12.0 GPM *(45.3 l/min)*. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 163°F *(73°C)*.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1854**, October 26, 2005.

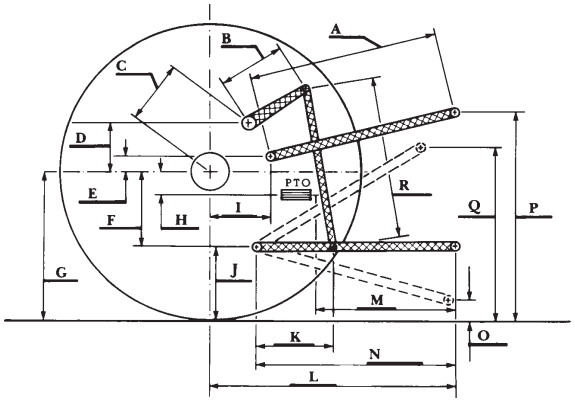
Leonard L. Bashford
Director

M.F. Kocher
V.I. Adamchuk
J.A. Smith
Board of Tractor Test Engineers

OECD/SAE Test

	inch	*mm*
A	21.9	*555*
B	11.4	*290*
C	13.7	*347*
D	12.7	*323*
E	11.7	*297*
F	5.2	*131*
G	23.1	*586*
H	0.2	*6*
I	12.6	*320*
J	17.9	*455*
K	15.8	*402*
L	32.9	*836*
M	20.1	*511*
N	27.5	*699*
O	8.1	*207*
P	36.0	*915*
Q	30.5	*775*
R	19.0	*483*

HITCH DIMENSIONS AS TESTED - NO LOAD



John Deere 4520 Diesel

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