NEBRASKA TRACTOR TEST 1854
JOHN DEERE 4520 EH YDRO DIESEL
HYDROSTATIC

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
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)

CHASSIS: Type
Front wheel assist
Serial No.
*LV4520H250007*
Tread width
rear 51.3" to 74.8" (1304 mm to 1900 mm)
front 53.1" to 56.7" (1349 mm to 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)

<table>
<thead>
<tr>
<th>Power (HP)</th>
<th>Crankshaft speed rpm</th>
<th>Gal/hr</th>
<th>lb/h</th>
<th>lb/hp.hr</th>
<th>hp/hr/gal</th>
<th>Mean Atmospheric Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>46.58</td>
<td>2508</td>
<td>3.00</td>
<td>0.455</td>
<td>15.51</td>
<td>(3.06)</td>
<td>Air temperature</td>
</tr>
<tr>
<td>46.58</td>
<td>2508</td>
<td>3.00</td>
<td>0.455</td>
<td>15.51</td>
<td>(3.06)</td>
<td>75°F(24°C)</td>
</tr>
<tr>
<td>31.69</td>
<td>2500</td>
<td>2.31</td>
<td>0.514</td>
<td>13.72</td>
<td>(2.90)</td>
<td>Relative humidity</td>
</tr>
<tr>
<td>21.14</td>
<td>2500</td>
<td>1.79</td>
<td>0.506</td>
<td>11.84</td>
<td>(2.33)</td>
<td>Barometer</td>
</tr>
<tr>
<td>10.81</td>
<td>2500</td>
<td>1.35</td>
<td>0.879</td>
<td>8.03</td>
<td>(1.80)</td>
<td>28.76 Hg (97.39 kPa)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Front Wheel Drive Engaged dB(A)</th>
<th>Disengaged dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At no load in B range-speed setting 4.7 mph (7.5 kph)</td>
<td>86.1</td>
</tr>
<tr>
<td>Transport speed - no load - C range</td>
<td>86.2</td>
</tr>
<tr>
<td>Bystander in C range</td>
<td>77.5</td>
</tr>
</tbody>
</table>

TIRES AND WEIGHT
Rear Tires–No., size, ply & psi (kPa)
Two 17.5L-24; 8; 20
Front Tires–No., size, ply & psi (kPa)
Two 10-16.5; 6; 15
Height of Drawbar
15.5 in (395 mm)
Static Weight with operator– Rear | Front | Total
2590 lb (1184 kg) | 1640 lb (744 kg) | 4330 lb (1928 kg)

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)
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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: 9.5 GPM (35.2 l/min)
Delivery pressure: 2082 psi (144 bar)
Power: 11.3 HP (8.4 kW)

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

Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln