NEBRASKA TRACTOR TEST 1946
JOHN DEERE 4720 EHYDRO DIESEL
HYDROSTATIC
(Chassis S/N 670001 and higher)

LOCATION OF TESTS: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln, Nebraska 68583-0832

DATES OF TESTS: March 31-April 16, 2009

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)
- 0.8470
- Fuel weight: 7.052 lbs/gal (0.845 kg/l)

OIL:
- SAE 15W40
- API service classification: CH-4

Transmission and hydraulic lubricant:
- John Deere Hy-Gard Fluid

TOTAL TIME ENGINE WAS OPERATED: 11.0 hours

ENGINE:
- Make: John Deere Diesel
- Type: four cylinder vertical with turbocharger and air to air intercooler
- Serial No.: *PE4024R001850*
- Crankshaft lengthwise: Rated engine speed: 2400 rpm
- 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:
  - 27.4 - 29.5 lb/h (12.4 - 13.4 kg/h)
- High idle:
  - 2550 - 2650 rpm
- Turbo boost:
  - Nominal 16.7 - 18.1 psi (115 - 125 kPa)

CHASSIS:
- Type: Front wheel assist
- Serial No.: *LV4720H060469*
- Tread width:
  - Rear 66.5" to 90.0"
  - Front 54.6" to 56.7"
- Wheelbase: 71.5" (1816 mm)
- Hydraulic control system: direct engine drive
- Transmission: Hydrostatic. Infinitely variable within the ranges shown.

POWER TAKE-OFF PERFORMANCE

<table>
<thead>
<tr>
<th>Power HP (kW)</th>
<th>Crankshaft speed rpm</th>
<th>Gal/hr (l/h)</th>
<th>Bhp.hr (kgf.W.h)</th>
<th>Hp.hr/gal (kW.h/l)</th>
<th>Mean Atmospheric Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>58.66 (43.75)</td>
<td>2404</td>
<td>4.01</td>
<td>0.482</td>
<td>14.62</td>
<td>Air temperature</td>
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Maximum Torque: 171 lb.-ft. (232 Nm) at 1453 rpm
Maximum Torque Rise: -33.4%
Torque rise at 1902 rpm: -25%
Power increase at 2205 rpm: -1%

TRACTOR SOUND LEVEL WITHOUT CAB

<table>
<thead>
<tr>
<th>Condition</th>
<th>Front Wheel Drive Engaged</th>
<th>Front Wheel Drive Disengaged</th>
</tr>
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<tbody>
<tr>
<td>At no load in B range-speed setting 4.7 mph (7.5 km/h) (engine 2600 rpm)</td>
<td>86.6</td>
<td>86.5</td>
</tr>
<tr>
<td>Transport speed-no load-C range</td>
<td>83.1</td>
<td>83.0</td>
</tr>
<tr>
<td>Bystander in C range</td>
<td>88.1</td>
<td></td>
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TIRES AND WEIGHT

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<th>Tested Without Ballast</th>
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<tr>
<td>Rear Tires-No., size, ply &amp; psi (kPa)</td>
<td>Two 17.5L-24; 8; 20 (135)</td>
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<tr>
<td>Front Tires-No., size, ply &amp; psi (kPa)</td>
<td>Two 10.16.5; 6; 15 (105)</td>
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<tr>
<td>Static Weight with operator—Rear</td>
<td>2315 lb (1050 kg)</td>
</tr>
<tr>
<td>= Total</td>
<td>1710 lb (775 kg)</td>
</tr>
<tr>
<td>= Front</td>
<td>4025 lb (1825 kg)</td>
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ENGINE POWER TAKE-OFF PERFORMANCE

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Maximum Torque Rise: -33.4%
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Power increase at 2205 rpm: -1%

CHASSIS:
Type: Front wheel assist
Serial No.: *LV4720H060469*
Tread width: rear 66.5" (1689 mm) to 90.0" (2285 mm) front 54.6" (1386 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-0-4.1 (6.6)
  - B-0-7.3 (11.7)
  - C-0-17.0 (27.3)
- Reverse:
  - A-0-4.1 (6.6)
  - B-0-7.3 (11.7)
  - C-0-17.0 (27.3)
- 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: 3850 lb (1746 kg)
HYDRAULIC PERFORMANCE

CATEGORY: I
Quick Attach: None
OECD Static test
Maximum force exerted through whole range: 2523 lbs (11.2 kN)

i) Sustained pressure of the open relief valve: 2398 psi (165 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed: 11.6 GPM (43.9 l/min)
iii) Pump delivery rate at maximum hydraulic power: 11.6 GPM (43.9 l/min)
Delivery pressure: 2250 psi (155 bar)
Power: 15.2 HP (11.4 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 (203) 13.7 (349) 20.0 (509) 26.9 (684) 32.1 (816)
Lift force on frame lb (kN) (13.2) (13.6) (13.4) (11.6) (11.5)

REPAIRS AND ADJUSTMENTS: During preliminary hydraulic flow testing it was determined that the hydraulic pump was deficient. The pump was replaced and testing continued.

NOTE: The performance figures on this report apply to tractors with chassis S/N 670001 and higher.

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 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 167°F (75°C).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1946, July 30 2009.

Roger M. Hoy
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

John Deere 4720 Diesel