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2009

## Test 1946: John Deere 4720 S/N 65001 and Higher

Nebraska Tractor Test Laboratory

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# NEBRASKA TRACTOR TEST 1946

## JOHN DEERE 4720 EHYDRO DIESEL HYDROSTATIC (Chassis S/N 670001 and higher)

### 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
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### MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—(PTO speed—541 rpm)					
58.66 (43.75)	2404	4.01 (15.19)	0.482 (0.293)	14.62 (2.88)	

Maximum Power - (1 hour)					
59.16 (44.12)	2205	3.88 (14.68)	0.462 (0.281)	15.25 (3.00)	

### VARYING POWER AND FUEL CONSUMPTION

58.66 (43.75)	2404	4.01 (15.19)	0.482 (0.293)	14.62 (2.88)	Air temperature
51.69 (38.55)	2492	3.61 (13.66)	0.492 (0.299)	14.33 (2.82)	77°F (25°C)
39.47 (29.44)	2537	2.83 (10.72)	0.506 (0.308)	13.93 (2.74)	Relative humidity
26.80 (19.98)	2584	2.07 (7.84)	0.545 (0.331)	12.94 (2.55)	14%
13.50 (10.07)	2604	1.33 (5.02)	0.693 (0.421)	10.18 (2.01)	Barometer
1.49 (1.11)	2604	0.78 (2.97)	3.708 (2.255)	1.90 (0.37)	28.34"Hg (95.97kPa)

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

	Front Wheel Drive Engaged dB(A)	Disengaged dB(A)
At no load in B range-speed setting 4.7 mph (7.5 km/h) (engine 2600 rpm)	86.6	86.5
At no load in B range-speed setting 4.7 mph (7.5 km/h) (engine 1750 rpm)	83.1	83.0
Transport speed - no load - C range		88.1
Bystander in C range		79.1

### 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 17.5L-24; 8; 20 (135)  
 Two 10-16.5; 6; 15 (105)  
 15.5 in (395 mm)  
 2315 lb (1050 kg)  
 1710 lb (775 kg)  
 4025 lb (1825 kg)

**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 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) not measured

**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 (11.2kN)

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

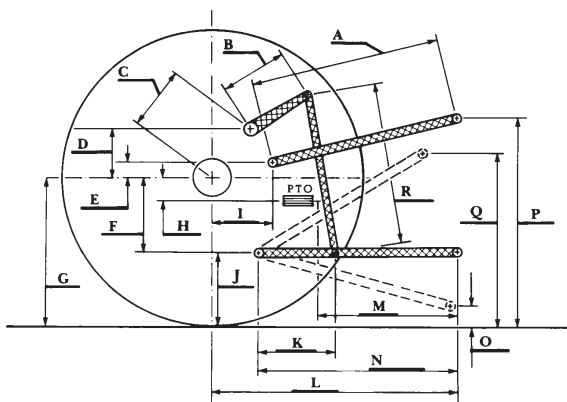
### SAE Static Test—System pressure 2165 psi (149 Bar)

Hitch point distance to ground level in.(mm)	8.1 (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)

### 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



**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



**John Deere 4720 Diesel**