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## Test 1756: John Deere 5410 Diesel 9-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1756

## JOHN DEERE 5410 DIESEL

## ALSO JOHN DEERE 5420 DIESEL

### 9 SPEED

#### 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—545 rpm)					
65.44 (48.80)	2400	4.21 (15.58)	0.445 (0.271)	15.90 (3.13)	
Maximum Power—(2 hours)					
66.49 (49.58)	2300	4.06 (15.36)	0.432 (0.263)	16.38 (3.23)	

#### VARYING POWER AND FUEL CONSUMPTION

65.44 (48.80)	2400	4.12 (15.58)	0.445 (0.271)	15.90 (3.13)	Air temperature
57.25 (42.69)	2474	3.81 (14.43)	0.472 (0.287)	15.02 (2.96)	78°F (26°C)
43.61 (37.52)	2505	3.22 (12.19)	0.523 (0.318)	13.54 (2.67)	Relative humidity
29.31 (21.86)	2533	2.63 (9.94)	0.635 (0.386)	11.16 (2.20)	63%
14.80 (11.03)	2556	1.99 (7.54)	0.953 (0.580)	7.43 (1.46)	Barometer
1.12 (0.83)	2574	1.40 (5.29)	8.873 (5.397)	0.80 (0.16)	28.68"Hg (97.12 kPa)

Maximum Torque 204 lb.-ft. (277 Nm) at 1094 rpm  
Maximum Torque Rise - 42.5%  
Torque rise at 1900 rpm - 23%

TRACTOR SOUND LEVEL WITHOUT CAB (5410)	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 5th (B2) gear	91.5	91.6
Bystander in 9th (C3) gear	--	83.5

TRACTOR SOUND LEVEL WITH CAB (5420)	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 5th (B2) gear	82.8	82.7
Bystander in 12th (C4) gear	--	85.2

#### 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 16.9-30; 6; 12 (85)  
Two 11.2-24; 6; 14 (95)  
18.0 in (455 mm)  
3250 lb (1474 kg)  
2700 lb (1225 kg)  
5950 lb (2699 kg)

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

**Dates of Test:** October 15-19, 1998.

**Sound test on John Deere 5420:** October 24, 2001

**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) 0.8506 Fuel weight 7.082 lbs/gal (0.849 kg/l) Oil SAE 10W30 API service classification CE/CF-4 Transmission and hydraulic lubricant John Deere Hy-Gard Fluid Front axle lubricant SAE 80W90 API GL-5 Total time engine was operated 8.5 hours

**ENGINE:** Make John Deere Diesel Type four cylinder vertical Serial No. \*PE 4045D 008325\* Crankshaft lengthwise Rated engine speed 2400 Bore and stroke 4.19" x 5.00" (106.4 mm x 127.0 mm) Compression ratio 17.6 to 1 Displacement 276 cu in (4517 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 and sediment bowl Muffler underhood Exhaust vertical Cooling medium temperature control one thermostat

**ENGINE OPERATING PARAMETERS:** Fuel rate: 28.9 - 32.0 lb/h (13.2 - 14.5 kg/h) High idle: 2550 - 2600 rpm

**CHASSIS:** Type front wheel assist Serial No. \*LV5410S-143093\* Tread width rear 53.8" (1366 mm) to 69.7" (1770 mm) front 51.7" (1313 mm) to 75.9" (1927 mm) Wheelbase 85.7" (2177 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio Nominal travel speeds mph (km/h) first 1.32 (2.13) second 1.91 (3.07) third 2.60 (4.19) fourth 3.12 (5.02) fifth 4.50 (7.24) sixth 6.14 (9.88) seventh 8.56 (13.78) eighth 12.36 (19.89) ninth 16.86 (27.13) reverse 2.22 (3.57), 5.24 (8.43), 14.39 (23.16) Clutch single dry disc operated by foot pedal Brakes single wet disc hydraulically operated by two foot pedals which can be locked together Steering hydrostatic Power take-off 540 rpm at 2376 engine rpm Unladen tractor mass 5785 lb (2624 kg)

## JOHN DEERE 5410 DIESEL

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range: 2905 lbs (12.9 kN)

- i) Opening pressure of relief valve: NA
- Sustained pressure of the open relief valve: 2920 psi (201 bar)
- ii) Pump delivery rate at minimum pressure and rated engine speed: 16.3 GPM (61.7 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 15.3 GPM (57.9 l/min)
- \* Delivery pressure: 2450 psi (169 bar)
- Power: 21.9 HP (16.3 kW)

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi.(bar) 2830(195)  
 Location: remote outlet  
 Hydraulic oil temperature: °F(°C) 170(77)  
 Location: hydraulic sump  
 Category: II  
 Quick attach: none

#### ASAE Static Test—System pressure 2750 psi (190 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	4686	4713	4625	4178	3619
" " " " " (kN)	(20.8)	(21.0)	(20.6)	(18.6)	(16.1)

#### SAE Static Test—System pressure 2550 psi (176 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	4345	4370	4299	3874	3356
" " " " " (kN)	(19.3)	(19.4)	(19.1)	(17.2)	(14.9)

**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. For the maximum power tests, the fuel temperature at the injection pump was maintained at 131°F (55°C).

**Report reissued:** Supplemental permit for John Deere 5420 Diesel, December 2001.

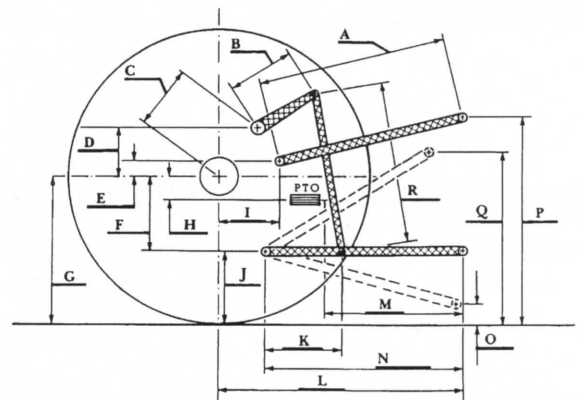
We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1756, December 6, 2001.

Brent T. Sampson  
 Test Engineer

L.L. Bashford  
 M.F. Kocher  
 V.I. Adamchuk  
 Board of Tractor Test Engineers

	SAE/ASAE Test		OECD Test	
	inch	mm	inch	mm
A	23.2	590	24.1	613
B	11.0	280	11.0	280
C	14.0	356	14.0	356
D	12.2	311	12.2	311
E	11.2	284	11.2	284
F	6.5	166	6.5	166
G	27.4	695	27.4	695
H	0.2	4	0.2	4
I	15.1	384	15.1	384
J	20.8	530	20.8	530
K	16.7	424	16.7	424
L	39.2	996	39.2	996
M	22.4	570	22.4	570
N	32.9	836	32.9	836
O	8.0	203	8.0	203
P	40.9	1040	44.9	1140
Q	34.0	864	34.0	864
R	20.8	527	20.8	527

HITCH DIMENSIONS AS TESTED - NO LOAD



## JOHN DEERE 5420 DIESEL

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range: 3213 lbs (14.3 kN)

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. (bar)	2830 (195)
Location:	remote outlet
Hydraulic oil temperature: °F (°C)	148 (64)
Location:	pump inlet
Category:	II
Quick attach:	none

#### ASAE Static Test—System pressure 2750 psi (190 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	5140	5288	5130	4655	3924
" " " " " (kN)	(22.9)	(23.5)	(22.8)	(20.7)	(17.5)

#### SAE Static Test—System pressure 2520 psi (174 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	4694	4829	4685	4266	3596
" " " " " (kN)	(20.9)	(21.5)	(20.8)	(19.0)	(16.0)



John Deere 5420 Diesel