

# SUMMARY OF OECD TEST 2418—NEBRASKA SUMMARY 630

## JOHN DEERE 6430 AUTOQUAD PLUS DIESEL

### 24 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed (PTO speed-1042 rpm)</b>					
97.0 (72.3)	2300	6.00 (22.73)	0.433 (0.263)	16.15 (3.18)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
104.9 (78.2)	2208	6.25 (23.66)	0.416 (0.253)	16.78 (3.31)	
<b>Maximum Power (1 hour)</b>					
112.5 (83.9)	1903	6.47 (24.48)	0.402 (0.244)	17.40 (3.43)	

#### VARYING POWER AND FUEL CONSUMPTION

97.0 (72.3)	2300	6.00 (22.73)	0.432 (0.263)	16.15 (3.18)	Air temperature
84.6 (63.1)	2364	5.60 (21.21)	0.464 (0.282)	15.10 (2.97)	66°F (19°C)
64.2 (47.9)	2393	4.68 (17.73)	0.510 (0.310)	13.71 (2.70)	Relative humidity
43.5 (32.4)	2428	3.92 (14.85)	0.632 (0.384)	11.07 (2.18)	35%
22.0 (16.4)	2457	2.85 (10.78)	0.905 (0.551)	7.72 (1.52)	Barometer
--	2458	2.28 (8.63)	--	--	29.5" Hg (100.0 kPa)

Maximum Torque - 327 lb.-ft. (444 Nm) at 1499 rpm  
 Maximum Torque rise - 48.0%  
 Torque rise at 1800 engine rpm - 46%

#### DRAWBAR PERFORMANCE (Unballasted—Front Drive Engaged) FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—10th (C2) Gear</b>									
88.2 (65.8)	7105 (31.61)	4.66 (7.49)	2301	4.9	0.487 (0.297)	14.34 (2.83)	181 (83)	57 (14)	29.8 (100.8)
<b>75% of Pull at Maximum Power—10th (C2) Gear</b>									
68.9 (51.4)	5310 (23.61)	4.87 (7.84)	2386	4.2	0.545 (0.332)	12.83 (2.53)	178 (81)	59 (15)	29.7 (100.7)
<b>50% of Pull at Maximum Power—10th (C2) Gear</b>									
46.9 (34.9)	3510 (15.61)	5.01 (8.06)	2419	2.7	0.652 (0.396)	10.73 (2.11)	174 (79)	59 (15)	29.7 (100.7)
<b>75% of Pull at Reduced Engine Speed—11th (C3) Gear</b>									
68.7 (51.2)	5300 (23.58)	4.86 (7.82)	1980	3.9	0.488 (0.297)	14.31 (2.82)	180 (82)	59 (15)	29.7 (100.7)
<b>50% of Pull at Reduced Engine Speed—11th (C3) Gear</b>									
47.0 (35.1)	3515 (15.63)	5.01 (8.07)	2022	2.9	0.556 (0.338)	12.59 (2.48)	172 (78)	63 (17)	29.7 (100.7)

**Location of tests:** DLG Test Centre, Technology and Farm inputs, Max-Eyth-Weg 1, D-64823 Gross-Umstadt, Germany

**Dates of tests:** March - April, 2007

**Manufacturer:** Deere & Company, Moline, Illinois, USA

**FUEL and OIL:** Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.840 Fuel weight 6.99 lbs/gal (0.838 kg/l) Oil SAE 10W-40 API service classification CF-4 Transmission and hydraulic lubricant John Deere Hy-Gard II fluid Front axle lubricant SAE 80W90.

**ENGINE:** Make John Deere Diesel Type four cylinder vertical with turbocharger and intercooler Serial No. L006439 Crankshaft lengthwise Rated engine speed 2300 Bore and stroke 4.19" x 5.00" (106.5 mm x 127.0 mm) Compression ratio 16.7 to 1 Displacement 276 cu in (4525 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter one paper element Muffler underhood Exhaust vertical Cooling medium temperature control thermostat and variable speed fan

**CHASSIS:** Type front wheel assist Serial No. 520404 Tread width rear 59.9" (1522 mm) to 79.3" (2014 mm) front 60.2" (1528 mm) to 79.8" (2028 mm) Wheel base 94.5" (2400 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (4) range operator controlled powershift Nominal travel speeds mph (km/h) first 0.99 (1.59) second 1.19 (1.91) third 1.42 (2.29) fourth 1.74 (2.80) fifth 2.41 (3.88) sixth 2.90 (4.67) seventh 3.47 (5.59) eighth 3.93 (6.32) ninth 4.25 (6.84) tenth 4.73 (7.61) eleventh 5.66 (9.11) twelfth 6.44 (10.37) thirteenth 6.93 (11.16) fourteenth 7.75 (12.48) fifteenth 9.29 (14.95) sixteenth 10.47 (16.85) seventeenth 11.38 (18.31) eighteenth 12.60 (20.28) nineteenth 14.14 (22.75) twentieth 15.09 (24.29) twenty-first 17.01 (27.38) twenty-second 18.49 (29.76) twenty-third 20.38 (32.79) twenty-fourth 24.96 (40.17) reverse 1.03 (1.66), 1.24 (1.99), 1.49 (2.39), 1.82 (2.93), 2.52 (4.05), 3.03 (4.87), 3.62 (5.83), 4.10 (6.60), 4.44 (7.14), 4.93 (7.94), 5.91 (9.51), 6.72 (10.82), 7.24 (11.65), 8.10 (13.03), 9.69 (15.60), 10.93 (17.59), 11.88 (19.12), 13.15 (21.17), 14.76 (23.75), 15.76 (25.36), 17.77 (28.59), 19.30 (31.06), 21.27 (34.23), 26.05 (41.93) Clutch multiple wet disc hydraulically operated by foot pedal Brakes wet disc hydraulically operated by two foot pedals which can be locked together Steering hydrostatic Power take-off 540 rpm at 2143 engine rpm or 1000 rpm at 2208 engine rpm. Unladen tractor mass 10845 lb (4920 kg)

**DRAWBAR PERFORMANCE**  
**(Unballasted-Front Drive Engaged)**  
**MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Temp.°F(°C) cool- ing med	Barom. inch Hg (kPa)		
9th (B4) Gear									
89.8 (67.0)	10775 (47.93)	3.13 (5.04)	1928	15.1	0.508 (0.309)	13.76 (2.71)	181 (83)	64 (18)	29.7 (100.6)
10th (C2) Gear									
97.9 (73.0)	10025 (44.59)	3.66 (5.89)	1899	9.6	0.465 (0.283)	15.02 (2.96)	181 (83)	50 (10)	29.9 (101.4)
11th (C3) Gear									
101.9 (76.0)	8450 (37.59)	4.52 (7.28)	1901	6.6	0.453 (0.277)	15.43 (3.04)	185 (85)	50 (10)	29.9 (101.4)
12th (D1) Gear									
101.5 (75.7)	7295 (32.45)	5.22 (8.40)	1900	5.1	0.454 (0.277)	15.41 (3.04)	185 (85)	50 (10)	29.9 (101.2)
13th (C4) Gear									
100.7 (75.1)	6625 (29.47)	5.70 (9.17)	1901	4.7	0.453 (0.276)	15.43 (3.04)	185 (85)	50 (10)	29.9 (101.2)
14th (D2) Gear									
101.2 (75.4)	5960 (26.51)	6.37 (10.25)	1903	4.1	0.456 (0.278)	15.32 (3.02)	185 (85)	50 (10)	29.9 (101.2)
15th (D3) Gear									
102.6 (76.5)	5010 (22.28)	7.68 (12.36)	1902	3.4	0.452 (0.275)	15.48 (3.05)	183 (84)	50 (10)	29.9 (101.1)
16th (E1) Gear									
99.5 (74.2)	4290 (19.08)	8.70 (14.00)	1903	3.1	0.462 (0.281)	15.13 (2.98)	185 (85)	50 (10)	29.9 (101.1)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's claim of 71.0 dB(A) cab sound level. The performance results on this summary were taken from OECD tests conducted under the Code II Test Code procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2418**, Nebraska Summary 630, February 15, 2009.

Roger M. Hoy  
Director

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

TRACTOR SOUND LEVEL WITH CAB (IVT transmission)	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load at 4.6 mph (7.5 km/h) (engine 1200 rpm)	67.9	67.7
At no load at 4.6 mph (7.5 km/h) (engine 2460 rpm)	72.0	71.7
Transport	--	75.7
Bystander	--	84.4

TRACTOR SOUND LEVEL WITH CAB (AutoQuad transmission)	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 10th (C2) Gear	71.8	71.4
Maximum Sound level	73.2	72.2
Bystander	--	--

**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 460/85R38; \*\*, 12 (80)  
Two 420/85R24; \*\*, 12 (80)  
20.5 in (520 mm)  
6825 lb (3095 kg)  
4190 lb (1900 kg)  
11015 lb (4995 kg)

This vehicle is equipped with an electronically controlled engine Power management system that monitors and boosts engine power output in certain circumstances. This is achieved by electronically changing the characteristics of the engine power-speed curve. The engine Power management function ("boosted" power level) becomes active in the higher transmission gears (16th and above) and for road transport applications. The system is also activated when power transfer through the PTO exceeds a preset level (and forward speed exceeds 0.5 km/h), for mobile PTO driven implement applications. An override system is provided to enable PTO operations at the "boosted" power level while the vehicle is stationary for test purposes. The results of of this PTO output test are presented below.

### 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1042 rpm)</b>					
110.0 (82.0)	2300	6.64 (25.12)	0.422 (0.257)	16.56 (3.26)	
<b>Standard Power Take-off Speed - (1000 rpm)</b>					
114.1 (85.1)	2208	6.70 (25.36)	0.410 (0.250)	17.04 (3.36)	
<b>Maximum Power (1 hour)</b>					
116.7 (87.0)	2099	6.76 (25.57)	0.405 (0.246)	17.27 (3.40)	

### VARYING POWER AND FUEL CONSUMPTION

110.0 (82.0)	2300	6.64 (25.12)	0.422 (0.257)	16.56 (3.26)	Air temperature
96.6 (72.0)	2373	6.15 (23.27)	0.446 (0.271)	15.70 (3.09)	66°F (19°C)
73.2 (54.6)	2406	5.24 (19.84)	0.500 (0.304)	13.97 (2.75)	Relative humidity
49.5 (36.9)	2437	4.27 (16.15)	0.604 (0.367)	11.58 (2.28)	35%
24.9 (18.6)	2457	2.98 (11.28)	0.835 (0.508)	8.37 (1.65)	Barometer
--	2459	2.34 (8.87)	--	--	29.5"Hg (100.0kPa)
--			--	--	

Maximum Torque 326 lb.-ft. (442 Nm) at 1501 rpm  
Maximum Torque rise -29.6%  
Torque rise at 1800 rpm -29%

## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: none

OECD Static test

Maximum force exerted through whole range:	5110 lbs (22.7 kN) (75 mm cylinders)
	6398 lbs (28.5 kN) (80 mm cylinders)
pump size:	17.5 GPM (66.3 l/min) 29.0 GPM (110.0 l/min)
i) Sustained pressure of the open relief valve:	3005 psi (207 bar) 3020 psi (208 bar)
ii) Pump delivery rate at minimum pressure:	18.9 GPM (71.7 l/min) 33.3 GPM (125.9 l/min)
iii) Pump delivery rate at maximum	
hydraulic power:	18.3 GPM (69.2 l/min) 29.0 GPM (109.7 l/min)
Delivery pressure:	2560 psi (176 bar) 2715 psi (187 bar)
Power:	27.3 HP (20.4 kW) 46.9 HP (35.0 kW)

### THREE POINT HITCH PERFORMANCE (SAE static test)

Observed maximum pressure psi. (bar)	2990 (206)				
Location:	lift cylinder				
Hydraulic oil temperature: °F (°C)	149 (65)				
Location:	hydraulic valve				
Category:	II				
Quick attach:	none				
System pressure 2545 psi (176 Bar) - with lift cylinders 2 x 75 mm					
Hitch point distance to ground level in. (mm)	7.9 (201)	14.9 (379)	21.9 (556)	28.9 (735)	36.1 (917)
Lift force on frame lb	6676	7154	7246	7032	6355
" " " " " " (kN)	(29.7)	(31.8)	(32.2)	(31.3)	(28.3)
System pressure - 2480 psi (171 Bar) - with lift cylinders 2 x 80 mm					
Hitch point distance to ground level in. (mm)	8.0 (203)	16.4 (417)	24.0 (610)	31.9 (810)	40.0 (1016)
Lift force on frame lb	15683	9566	9428	9212	8322
" " " " " " (kN)	(69.8)	(42.6)	(41.9)	(41.0)	(37.0)

	OECD test		SAE test	
	inch	mm	inch	mm
A	25.8	655	24.4	620
B	12.6	320	12.6	320
C	20.0	507	20.0	507
D	23.9	475	23.9	475
E	9.7	245	9.7	245
F	8.7	220	8.7	220
G	32.3	820	32.3	820
H	4.9	125	4.9	125
I	17.6	448	17.6	448
J	23.6	600	23.6	600
K	19.8	502	19.8	502
L	42.3	1076	42.3	1076
M	21.5	546	21.5	546
N	37.2	945	37.2	945
O	7.9	200	7.9	200
P	47.6	1210	42.6	1083
Q	34.6	880	34.6	880
R	31.3	795	31.3	795

