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2013

## Test 2081: John Deere 6170M

Nebraska Tractor Test Lab

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# NEBRASKA OECD TRACTOR TEST 2081—SUMMARY 897

## JOHN DEERE 6170M AUTOQUAD-PLUS DIESEL

### 20 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1077 rpm)					
144.55 (107.79)	2100	8.53 (32.29)	0.415 (0.252)	16.94 (3.34)	Fuel used during active exhaust regeneration - 0.85 gal (3.20 l) (see note 1 p.2)
Standard Power Take-off Speed (1000 rpm)					
152.67 (113.85)	1950	8.68 (32.86)	0.400 (0.243)	17.59 (3.46)	
Maximum Power (1 hour)					
156.52 (116.72)	1700	8.52 (32.25)	0.383 (0.233)	18.37 (3.63)	

#### VARYING POWER AND FUEL CONSUMPTION

144.55 (107.79)	2100	8.53 (32.29)	0.415 (0.252)	16.94 (3.34)	Air temperature
126.51 (94.34)	2165	7.93 (30.03)	0.441 (0.268)	15.95 (3.14)	73°F (23°C)
96.31 (71.82)	2198	6.77 (25.64)	0.494 (0.301)	14.22 (2.80)	Relative humidity
65.24 (48.65)	2227	5.40 (20.43)	0.582 (0.354)	12.09 (2.38)	42%
32.77 (24.43)	2238	3.92 (14.83)	0.840 (0.511)	8.37 (1.65)	Barometer
0.66 (0.50)	2250	2.87 (10.88)	30.405 (18.495)	0.23 (0.05)	28.73" Hg (97.29 kPa)

Maximum torque - 526 lb.-ft. (713 Nm) at 1250 rpm  
Maximum torque rise - 45.4%  
Torque rise at 1680 engine rpm - 34%  
Power increase at 1700 engine rpm - 8.3%

#### 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)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—7th (B3) Gear									
131.78 (98.27)	11185 (49.75)	4.42 (7.11)	2100	6.0	0.458 (0.279)	15.34 (3.02)	189 (87)	44 (7)	28.95 (98.04)
75% of Pull at Maximum Power—7th (B3) Gear									
106.04 (79.07)	8424 (37.47)	4.72 (7.60)	2194	3.9	0.503 (0.306)	13.98 (2.75)	189 (87)	46 (8)	28.95 (98.04)
50% of Pull at Maximum Power—7th (B3) Gear									
72.66 (54.18)	5622 (25.01)	4.85 (7.81)	2218	2.4	0.586 (0.357)	11.98 (2.36)	188 (87)	45 (7)	28.95 (98.04)
75% of Pull at Reduced Engine Speed—11th (C3) Gear									
106.30 (79.27)	8382 (37.28)	4.76 (7.66)	1386	3.7	0.415 (0.252)	16.95 (3.34)	190 (88)	44 (7)	28.95 (98.04)
50% of Pull at Reduced Engine Speed—11th (C3) Gear									
72.80 (54.29)	5614 (24.97)	4.86 (7.82)	1398	2.4	0.445 (0.270)	15.81 (3.12)	188 (87)	45 (7)	28.95 (98.04)

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

**Dates of tests:** October 29 to November 12, 2013

**Manufacturer:** John Deere Werke Mannheim, John-Deere- StraBe 90, Mannheim, Germany

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.8442 Fuel weight 7.029 lbs/gal (0.842 kg/l) Oil SAE 15W-40 API service classification CJ-4 Transmission and hydraulic lubricant John Deere Hy-Gard II fluid Front axle lubricant John Deere Hy-Gard II fluid Total time engine was operated: 24.0 hours

**ENGINE:** Make John Deere Diesel Type six cylinder vertical with turbocharger and air to air intercooler Serial No. \*CD6068R025882\* Crankshaft lengthwise Rated engine speed 2100 Bore and stroke 4.19" x 5.00" (106.5 mm x 127.0 mm) Compression ratio 16.5 to 1 Displacement 414 cu in (6788 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements and aspirator 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 and one paper cartridge with water separator Fuel cooler radiator for pump return fuel Exhaust regenerative particulate filter integrated within a vertical muffler Cooling medium temperature control two thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: 58.8 - 63.7 lb/h (26.7 - 28.9 kg/h) High idle: 2225 - 2275 rpm Turbo boost: nominal 15.9 - 18.9 psi (110 - 130 kPa) as measured 17.5 psi (121 kPa)

**CHASSIS:** Type front wheel assist Serial No.\*1L06170MJDK762189\* Tread width rear 61.9" (1572 mm) to 100.5" (2552 mm) front 63.8" (1620 mm) to 83.5" (2120 mm) Wheelbase 110.2" (2800 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (4) range operator controlled power shift Nominal travel speeds mph (km/h) first 1.51 (2.43) second 1.81 (2.92) third 2.17 (3.50) fourth 2.67 (4.29) fifth 3.19 (5.14) sixth 3.85 (6.19) seventh 4.60 (7.41) eighth 5.08 (8.18) ninth 5.64 (9.08) tenth 6.12 (9.85) eleventh 7.33 (11.80) twelfth 8.98 (14.45) thirteenth 9.41 (15.15) fourteenth 11.33 (18.24) fifteenth 13.58 (21.85) sixteenth 13.94 (22.44) seventeenth 16.63 (26.76) eighteenth 16.79 (27.02) nineteenth 20.11 (32.37) twentieth 24.64 (39.65)

**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE ENGAGED-2100 RPM**  
**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	Air dry bulb	Barom. inch Hg (kPa)
5th(B1)Gear									
111.89 (83.44)	14390 (64.01)	2.92 (4.70)	2182	14.1	0.520 (0.316)	13.51 (2.66)	190 (88)	49 (9)	29.13 (98.65)
6th(B2)Gear									
125.02 (93.22)	13109 (58.31)	3.58 (5.76)	2100	8.9	0.483 (0.294)	14.56 (2.87)	190 (88)	49 (10)	29.11 (98.58)
7th(B3)Gear									
131.78 (98.27)	11185 (49.75)	4.42 (7.11)	2100	6.0	0.458 (0.279)	15.34 (3.02)	189 (87)	44 (7)	28.95 (98.04)
8th(C1)Gear									
131.03 (97.71)	9981 (44.40)	4.92 (7.92)	2100	5.2	0.460 (0.280)	15.28 (3.01)	190 (88)	44 (6)	28.95 (98.04)
9th(B4)Gear									
132.23 (98.60)	8983 (39.96)	5.52 (8.88)	2100	4.2	0.457 (0.278)	15.37 (3.03)	190 (88)	43 (6)	28.95 (98.04)
10th(C2)Gear									
130.22 (97.11)	8116 (36.10)	6.02 (9.69)	2100	3.7	0.463 (0.282)	15.18 (2.99)	189 (87)	43 (6)	28.95 (98.04)
11th(C3)Gear									
132.79 (99.02)	6859 (30.51)	7.26 (11.68)	2100	2.9	0.455 (0.277)	15.44 (3.04)	189 (87)	44 (7)	28.95 (98.04)
12th(C4)Gear									
129.06 (96.24)	5403 (24.03)	8.96 (14.42)	2100	2.3	0.467 (0.284)	15.05 (2.96)	190 (88)	44 (7)	28.95 (98.04)

reverse 1.57 (2.53), 1.90 (3.05), 2.27 (3.65), 2.78 (4.47), 3.33 (5.36), 4.01 (6.46), 4.81 (7.74), 5.31 (8.54), 5.89 (9.48), 6.39 (10.28), 7.65 (12.31), 9.37 (15.08), 9.82 (15.81), 11.83 (19.03), 14.17 (22.80), 14.55 (23.42), 17.36 (27.93), 17.52 (28.20), 20.98 (33.77), 25.71 (41.37) **Clutch** wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1950 engine rpm or 1000 rpm at 1950 engine rpm **Unladen tractor mass** 15090 lb (6845 kg)

**NOTE 1:** The manufacturer declares that the average time between active regenerations is 100 hours, while operated in Auto Filter Cleaning Mode, at rated speed, full load, under steady state conditions.

**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 inlet was maintained at 127°F (53°C). The performance figures on this summary were taken from a test conducted under the OECD Code 2 test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2081**, Nebraska Summary 897, January 13, 2014.

Roger M. Hoy  
Director

M.F. Kocher  
S. Pitla  
J.D. Luck  
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th (B3) gear	66.2	66.2
Transport speed - no load - 20th (E4) gear		71.3
Bystander in 19th (E3) gear		82.8

**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 460/85R42;\*\*\*;16(110)  
Two 380/85R30;\*\*\*;12(85)  
20.5 in (520 mm)  
9885 lb (4484 kg)  
5380 lb (2440 kg)  
15265 lb (6924 kg)

**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE ENGAGED - 1700 RPM**  
**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)	Hp.hr/gal (kW.h/l)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
5th(B1)Gear									
112.75 (84.07)	14409 (64.09)	2.94 (4.72)	2182	13.5	0.516 (0.314)	13.62 (2.68)	190 (88)	48 (9)	29.13 (98.65)
6th(B2)Gear									
125.90 (93.88)	13536 (60.21)	3.49 (5.62)	2069	9.8	0.482 (0.293)	14.57 (2.87)	190 (88)	50 (10)	29.11 (98.58)
7th(B3)Gear									
134.00 (99.92)	13023 (57.93)	3.86 (6.21)	1900	9.3	0.455 (0.276)	15.46 (3.05)	191 (88)	51 (11)	29.09 (98.51)
8th(C1)Gear									
135.32 (100.90)	12507 (55.63)	4.06 (6.53)	1793	8.4	0.444 (0.270)	15.82 (3.12)	192 (89)	52 (11)	29.08 (98.48)
9th(B4)Gear									
140.05 (104.43)	12127 (53.94)	4.33 (6.97)	1700	7.1	0.429 (0.261)	16.39 (3.23)	191 (88)	44 (7)	28.95 (98.04)
10th(C2)Gear									
139.62 (104.11)	11016 (49.00)	4.75 (7.64)	1700	6.0	0.432 (0.263)	16.29 (3.21)	192 (89)	43 (6)	28.95 (98.04)
11th(C3)Gear									
143.39 (106.93)	9299 (41.36)	5.78 (9.30)	1700	4.5	0.419 (0.255)	16.78 (3.31)	193 (89)	44 (6)	28.95 (98.04)
12th(C4)Gear									
142.74 (106.44)	7464 (33.20)	7.17 (11.54)	1700	3.3	0.419 (0.255)	16.77 (3.30)	193 (89)	44 (7)	28.95 (98.04)
13th(D1)Gear									
140.91 (105.07)	7008 (31.17)	7.54 (12.13)	1701	3.0	0.425 (0.259)	16.52 (3.25)	192 (89)	44 (7)	28.95 (98.04)
14th(D2)Gear									
138.26 (103.10)	5674 (25.24)	9.14 (14.70)	1700	2.4	0.435 (0.264)	16.17 (3.19)	194 (90)	44 (7)	28.96 (98.07)

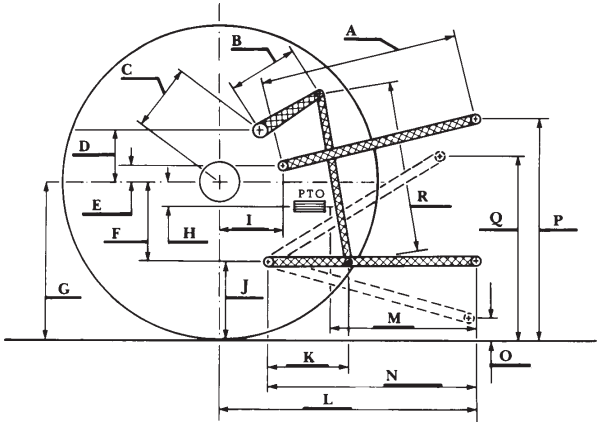
**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE DISENGAGED**  
**FUEL CONSUMPTION CHARACTERISTICS**

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—9th (B4) Gear</b>									
127.39 (94.99)	8985 (39.97)	5.32 (8.56)	2100	6.8	0.475 (0.289)	14.79 (2.91)	190 (88)	43 (6)	28.95 (98.04)
<b>75% of Pull at Maximum Power—9th (B4) Gear</b>									
102.29 (76.27)	6774 (30.13)	5.66 (9.11)	2193	4.9	0.526 (0.320)	13.36 (2.63)	189 (87)	51 (11)	29.08 (98.48)
<b>50% of Pull at Maximum Power—9th (B4) Gear</b>									
70.50 (52.57)	4533 (20.16)	5.83 (9.38)	2217	3.1	0.613 (0.373)	11.47 (2.26)	188 (87)	51 (11)	29.08 (98.48)
<b>75% of Pull at Reduced Engine Speed—12th (C4) Gear</b>									
102.31 (76.29)	6719 (29.89)	5.71 (9.19)	1387	4.7	0.428 (0.260)	16.43 (3.24)	190 (88)	52 (11)	29.07 (98.44)
<b>50% of Pull at Reduced Engine Speed—12th (C4) Gear</b>									
70.71 (52.72)	4524 (20.12)	5.86 (9.43)	1398	3.0	0.458 (0.278)	15.35 (3.02)	188 (87)	52 (11)	29.08 (98.48)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
<b>6th (B2) Gear</b>									
101.86 (75.95)	10983 (48.85)	3.48 (5.60)	2188	14.1	0.553 (0.336)	12.72 (2.51)	189 (87)	51 (10)	29.10 (98.55)
<b>7th (B3) Gear</b>									
120.25 (89.67)	10569 (47.01)	4.27 (6.87)	2176	11.5	0.498 (0.303)	14.12 (2.78)	190 (88)	51 (11)	29.09 (98.51)
<b>8th (C1) Gear</b>									
124.88 (93.12)	10002 (44.49)	4.69 (7.54)	2100	8.9	0.484 (0.295)	14.51 (2.86)	189 (87)	44 (7)	28.95 (98.04)
<b>9th (B4) Gear</b>									
127.39 (94.99)	8985 (39.97)	5.32 (8.56)	2100	6.8	0.475 (0.289)	14.79 (2.91)	190 (88)	43 (6)	28.95 (98.04)
<b>10th (C2) Gear</b>									
127.15 (94.82)	8182 (36.40)	5.83 (9.38)	2100	5.8	0.476 (0.289)	14.78 (2.91)	190 (88)	43 (6)	28.95 (98.04)
<b>11th (C3) Gear</b>									
131.15 (97.80)	6944 (30.89)	7.08 (11.39)	2100	4.5	0.459 (0.279)	15.33 (3.02)	189 (87)	44 (7)	28.95 (98.04)
<b>12th (C4) Gear</b>									
128.15 (95.56)	5474 (24.35)	8.78 (14.13)	2101	3.3	0.469 (0.285)	14.99 (2.95)	190 (88)	44 (7)	28.95 (98.04)

HYDRAULIC PERFORMANCE

CATEGORY: IIIN  
Quick Attach: No

	<u>Lift cylinders</u>
Maximum force exerted through whole range:	9647 lbs (42.9 kN) 2x 80 mm 11098 lbs (49.4 kN) 2x 85 mm
i) Maximum observed pressure:	2888 psi (199 bar) <u>two outlet sets combined</u>
ii) Pump delivery rate at minimum pressure and rated engine speed:	30.3 GPM (114.7 l/min)
iii) Pump delivery rate at maximum hydraulic power:	30.3 GPM (114.6 l/min)
Delivery pressure:	2794 psi (193 bar)
Power:	49.3 HP (36.8 kW) <u>single outlet set</u>
ii) Pump delivery rate at minimum pressure and rated engine speed:	30.1 GPM (114.1 l/min)
iii) Pump delivery rate at maximum hydraulic power:	30.3 GPM (114.9 l/min)
Delivery pressure:	2294 psi (158 bar)
Power:	40.6 HP (30.3 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	27.8	705
B	16.1	410
C	24.6	625
D	23.8	605
E	12.8	325
F	10.8	275
G	34.2	870
H	4.1	105
I	19.4	494
J	23.4	595
K	23.4	594
L	47.4	1205
M	23.0	585
N	39.8	1010
O	9.1	230
P	50.4	1280
Q	39.4	1000
R	40.4	1025



JOHN DEERE 6170M DIESEL

Institute of Agriculture and Natural Resources  
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