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2013

## Test 2078: John Deere 6125M

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# NEBRASKA OECD TRACTOR TEST 2078—SUMMARY 894

## JOHN DEERE 6125M POWRQUAD-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—1071 rpm)</b>					
105.13 (78.40)	2101	6.68 (25.27)	0.446 (0.271)	15.75 (3.10)	Fuel used during active exhaust regeneration - 0.24 gal (0.93 l) (see Note 1 p.2)
<b>Standard Power Take-off Speed (1000 rpm)</b>					
114.39 (85.30)	1962	6.87 (26.02)	0.422 (0.257)	16.64 (3.28)	
<b>Maximum Power (1 hour)</b>					
114.88 (85.66)	1801	6.72 (25.44)	0.411 (0.250)	17.09 (3.37)	

#### VARYING POWER AND FUEL CONSUMPTION

105.13 (78.40)	2101	6.68 (25.27)	0.446 (0.271)	15.75 (3.10)	Air temperature
91.99 (68.60)	2164	6.17 (23.35)	0.471 (0.287)	14.91 (2.94)	73°F (23°C)
70.08 (52.26)	2193	5.17 (19.58)	0.519 (0.316)	13.55 (2.67)	Relative humidity
47.22 (35.21)	2222	4.07 (15.40)	0.606 (0.368)	11.61 (2.29)	29%
23.87 (17.80)	2239	3.06 (11.57)	0.900 (0.548)	7.81 (1.54)	Barometer
1.58 (1.18)	2250	2.17 (8.23)	9.646 (5.867)	0.73 (0.14)	28.73" Hg (97.29 kPa)

Maximum Torque - 384 lb.-ft. (521 Nm) at 1401 rpm  
Maximum Torque rise - 46.2%  
Torque rise at 1681 engine rpm - 35%  
Power increase at 1801 rpm - 9.3%

#### 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)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—11th (C3) Gear</b>									
98.31 (73.31)	7013 (31.19)	5.26 (8.47)	2100	4.1	0.481 (0.293)	14.61 (2.88)	190 (88)	62 (16)	28.88 (97.80)
<b>75% of Pull at Maximum Power—11th (C3) Gear</b>									
78.19 (58.31)	5279 (23.48)	5.56 (8.94)	2193	3.0	0.520 (0.316)	13.53 (2.66)	189 (87)	53 (12)	28.87 (97.77)
<b>50% of Pull at Maximum Power—11th (C3) Gear</b>									
53.19 (39.66)	3520 (15.66)	5.67 (9.12)	2216	2.1	0.599 (0.364)	11.74 (2.31)	188 (87)	53 (12)	28.86 (97.73)
<b>75% of Pull at Reduced Engine Speed—14th (D2) Gear</b>									
78.46 (58.51)	5285 (23.51)	5.57 (8.96)	1605	3.1	0.461 (0.280)	15.25 (3.00)	189 (87)	53 (12)	28.85 (97.70)
<b>50% of Pull at Reduced Engine Speed—14th (D2) Gear</b>									
53.13 (39.62)	3517 (15.64)	5.67 (9.12)	1617	2.1	0.502 (0.305)	14.01 (2.76)	188 (87)	53 (12)	28.85 (97.70)

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

**Dates of tests:** October 22 - 30, 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 10W-30 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 19.0 hours.

**ENGINE:** Make John Deere Diesel Type four cylinder vertical with turbocharger and air to air intercooler Serial No. \*CD4045R023926\* Crankshaft lengthwise Rated engine speed 2100 Bore and stroke 4.19" x 5.00" (106.5 mm x 127.0 mm) Compression ratio 17.2 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, engine coolant heat exchanger 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 an underhood muffler with vertical outlet Cooling medium temperature control two thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: 44.1 - 47.7 lb/h (20.0 - 21.6 kg/h) High idle: 2225 - 2275 rpm Turbo boost: nominal 17.4-20.3 psi (120-140 kPa) as measured 19.0 psi (131 kPa)

**CHASSIS:** Type front wheel assist Serial No. \*1L06125MADG763961\* Tread width rear 63.5" (1612 mm) to 75.4" (1916 mm) front 62.4" (1584 mm) to 79.4" (2016 mm) Wheel base 101.6" (2580 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 0.93 (1.50) second 1.12 (1.81) third 1.35 (2.17) fourth 1.65 (2.65) fifth 2.28 (3.67) sixth 2.74 (4.42) seventh 3.29 (5.29) eighth 3.72 (5.98) ninth 4.03 (6.48) tenth 4.47 (7.20) eleventh 5.36 (8.62) twelfth 6.09 (9.81) thirteenth 6.56 (10.56) fourteenth 7.34 (11.81) fifteenth 8.79 (14.15) sixteenth 9.90 (15.94) seventeenth 10.77 (17.33) eighteenth 11.93 (19.20) nineteenth 13.37 (21.52) twentieth 14.29 (22.99) twenty-first 16.11 (25.92) twenty-second 17.50 (28.16) twenty-third 19.29 (31.04) twenty-fourth 23.63 (38.02)

## DRAWBAR PERFORMANCE

### Unballasted-Front Drive Engaged-2100 Engine 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)
7th (B3) Gear									
87.90 (65.54)	10828 (48.16)	3.05 (4.90)	2178	13.3	0.540 (0.329)	13.01 (2.56)	190 (88)	43 (6)	28.85 (97.70)
8th (C1) Gear									
93.91 (70.02)	10071 (44.80)	3.50 (5.63)	2102	8.2	0.504 (0.307)	13.95 (2.75)	190 (88)	46 (8)	28.88 (97.80)
9th (B4) Gear									
94.81 (70.70)	9253 (41.16)	3.84 (6.18)	2100	6.8	0.499 (0.303)	14.10 (2.78)	190 (88)	44 (7)	28.86 (97.73)
10th (C2) Gear									
96.17 (71.71)	8343 (37.11)	4.32 (6.95)	2100	5.7	0.493 (0.300)	14.27 (2.81)	190 (88)	62 (17)	28.89 (97.83)
11th (C3) Gear									
98.31 (73.31)	7013 (31.19)	5.26 (8.47)	2100	4.1	0.481 (0.293)	14.61 (2.88)	190 (88)	62 (16)	28.88 (97.80)
12th (D1) Gear									
96.92 (72.27)	6030 (26.82)	6.03 (9.70)	2100	3.4	0.490 (0.298)	14.34 (2.82)	190 (88)	62 (17)	28.86 (97.73)
13th (C4) Gear									
96.44 (71.91)	5551 (24.69)	6.52 (10.48)	2100	3.0	0.493 (0.300)	14.26 (2.81)	190 (88)	62 (17)	28.88 (97.80)
14th (D2) Gear									
96.76 (72.15)	4961 (22.07)	7.32 (11.77)	2100	2.7	0.490 (0.298)	14.36 (2.83)	190 (88)	61 (16)	28.86 (97.73)
15th (D3) Gear									
97.31 (72.56)	4145 (18.44)	8.81 (14.17)	2100	2.2	0.487 (0.296)	14.43 (2.84)	190 (88)	61 (16)	28.85 (97.69)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 10th (C2) Gear	67.9	67.8
Transport in 24th (F4) gear		71.0
Bystander in 23rd (F3) gear		78.9

## 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 420/85R38; \*\*, 12 (85)  
 Two 380/85R24; \*\*, 12 (85)  
 19.5 in (495 mm)  
 6885 lb (3123 kg)  
 4220 lb (1914 kg)  
 11105 lb (5037 kg)

reverse 0.98 (1.57), 1.17 (1.89), 1.40 (2.26), 1.72 (2.77), 2.38 (3.83), 2.86 (4.61), 3.43 (5.52), 3.88 (6.24), 4.20 (6.76), 4.67 (7.51), 5.59 (9.00), 6.36 (10.24), 6.84 (11.02), 7.66 (12.33), 9.17 (14.76), 10.34 (16.64), 11.24 (18.09), 12.45 (20.03), 13.96 (22.46), 14.91 (23.99), 16.80 (27.04), 18.26 (29.39), 20.13 (32.39), 24.47 (39.68) **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 1967 engine rpm or 1000 rpm at 1962 engine rpm **Unladen tractor mass** 10930 lb (4958 kg)

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

**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 PTO load, under steady state conditions. A 7% power loss was observed during the active regeneration.

**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 124°F (51°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. **2078**, Nebraska Summary 894, January 13, 2014.

Roger M. Hoy  
 Director

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

**DRAWBAR PERFORMANCE**  
**Unballasted-Front Drive Engaged-1800 Engine 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)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
7th (B3) Gear									
87.94 (65.58)	10837 (48.21)	3.05 (4.90)	2178	13.6	0.539 (0.328)	13.03 (2.57)	190 (88)	43 (6)	28.85 (97.70)
8th (C1) Gear									
94.69 (70.61)	10422 (46.36)	3.41 (5.49)	2071	9.4	0.504 (0.306)	13.96 (2.75)	190 (88)	46 (8)	28.88 (97.80)
9th (B4) Gear									
98.35 (73.34)	10078 (44.83)	3.66 (5.89)	2027	8.1	0.490 (0.298)	14.35 (2.83)	190 (88)	45 (7)	28.86 (97.73)
10th (C2) Gear									
102.50 (76.43)	9602 (42.71)	4.01 (6.45)	1976	7.2	0.476 (0.290)	14.77 (2.91)	190 (88)	47 (8)	28.88 (97.80)
11th (C3) Gear									
105.44 (78.63)	8975 (39.92)	4.41 (7.09)	1800	6.3	0.452 (0.275)	15.57 (3.07)	189 (87)	48 (9)	28.87 (97.77)
12th (D1) Gear									
105.09 (78.37)	7744 (34.44)	5.09 (8.19)	1800	4.9	0.454 (0.276)	15.49 (3.05)	190 (88)	49 (10)	28.89 (97.83)
13th (C4) Gear									
105.74 (78.85)	7201 (32.03)	5.51 (8.87)	1800	4.4	0.449 (0.273)	15.65 (3.08)	189 (87)	49 (9)	28.88 (97.80)
14th (D2) Gear									
105.58 (78.73)	6385 (28.40)	6.20 (9.98)	1800	3.7	0.453 (0.275)	15.53 (3.06)	189 (87)	49 (10)	28.89 (97.83)
15th (D3) Gear									
107.00 (79.79)	5368 (23.88)	7.48 (12.03)	1800	3.1	0.446 (0.271)	15.78 (3.11)	189 (87)	50 (10)	28.89 (97.83)
16th (E1) Gear									
104.24 (77.73)	4621 (20.56)	8.46 (13.62)	1800	2.7	0.457 (0.278)	15.37 (3.03)	189 (87)	51 (10)	28.89 (97.83)

**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—11th (C3) Gear</b>									
95.01 (70.85)	7066 (31.43)	5.04 (8.11)	2100	7.5	0.499 (0.304)	14.09 (2.78)	190 (88)	61 (16)	28.87 (97.77)
<b>75% of Pull at Maximum Power—11th (C3) Gear</b>									
77.41 (57.72)	5328 (23.70)	5.45 (8.77)	2194	4.3	0.523 (0.318)	13.45 (2.65)	189 (87)	53 (12)	28.87 (97.77)
<b>50% of Pull at Maximum Power—11th (C3) Gear</b>									
52.96 (39.49)	3555 (15.81)	5.59 (9.00)	2216	2.8	0.600 (0.365)	11.72 (2.31)	188 (87)	53 (12)	28.86 (97.73)
<b>75% of Pull at Reduced Engine Speed—14th (D2) Gear</b>									
77.46 (57.76)	5320 (23.66)	5.46 (8.79)	1606	4.3	0.462 (0.281)	15.22 (3.00)	190 (88)	53 (12)	28.85 (97.70)
<b>50% of Pull at Reduced Engine Speed—14th (D2) Gear</b>									
52.98 (39.50)	3556 (15.82)	5.59 (8.99)	1617	2.7	0.506 (0.308)	13.89 (2.74)	188 (87)	53 (12)	28.85 (97.70)
<b>MAXIMUM POWER IN SELECTED GEARS</b>									
<b>10th (C2) Gear</b>									
88.96 (66.34)	8302 (36.93)	4.02 (6.47)	2129	12.9	0.535 (0.325)	13.15 (2.59)	189 (87)	47 (8)	28.88 (97.80)
<b>11th (C3) Gear</b>									
95.01 (70.85)	7066 (31.43)	5.04 (8.11)	2100	7.5	0.499 (0.304)	14.09 (2.78)	190 (88)	61 (16)	28.87 (97.77)
<b>12th (D1) Gear</b>									
95.16 (70.96)	6095 (27.11)	5.86 (9.42)	2100	5.5	0.498 (0.303)	14.10 (2.78)	190 (88)	62 (16)	28.87 (97.77)
<b>13th (C4) Gear</b>									
95.44 (71.17)	5622 (25.01)	6.37 (10.24)	2100	4.6	0.496 (0.302)	14.18 (2.79)	190 (88)	62 (17)	28.88 (97.80)
<b>14th (D2) Gear</b>									
96.42 (71.90)	5047 (22.45)	7.16 (11.52)	2100	4.0	0.491 (0.299)	14.32 (2.82)	190 (88)	61 (16)	28.86 (97.73)
<b>15th (D3) Gear</b>									
97.50 (72.70)	4226 (18.80)	8.65 (13.92)	2100	3.2	0.487 (0.296)	14.42 (2.84)	190 (88)	61 (16)	28.86 (97.73)

## HYDRAULIC PERFORMANCE

CATEGORY: IIIN

Quick Attach: none

OECD Static test

Maximum force exerted through whole range: 5345 lbs (23.8 kN) (75 mm cylinders)  
7130 lbs (31.7 kN) (85 mm cylinders)

### Two outlet sets combined

35 cc pump 45 cc pump

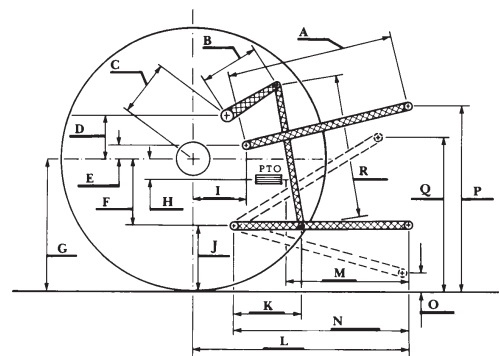
i) Sustained pressure of the open relief valve:	2966 psi (204 bar)	2913 psi (201 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	22.2 GPM (84.0 l/min)	30.7 GPM (116.3 l/min)
iii) Pump delivery rate at maximum hydraulic power:	22.3 GPM (84.4 l/min)	30.0 GPM (113.7 l/min)
Delivery pressure:	2673 psi (184 bar)	2837 psi (196 bar)
Power:	34.8 HP (25.9 kW)	49.7 HP (37.1 kW)

### single outlet set

ii) Pump delivery rate at minimum pressure and rated engine speed:	22.1 GPM (83.8 l/min)	30.5 GPM (115.3 l/min)
iii) Pump delivery rate at maximum hydraulic power:	22.4 GPM (84.9 l/min)	30.7 GPM (116.1 l/min)
Delivery pressure:	2623 psi (181 bar)	2238 psi (154 bar)
Power:	34.3 HP (25.6 kW)	40.0 HP (29.9 kW)

### HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	25.2	640
B	12.8	325
C	19.9	505
D	18.7	475
E	12.6	320
F	8.8	224
G	31.5	800
H	3.1	80
I	16.8	427
J	22.7	576
K	19.8	502
L	42.5	1080
M	21.7	550
N	37.2	945
O	9.1	231
P	49.6	1261
Q	36.2	920
R	30.1	765



**JOHN DEERE 6125M DIESEL**

Institute of Agriculture and Natural Resources  
University of Nebraska–Lincoln