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2013

Test 2079: John Deere 6140M

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 2079—SUMMARY 895

JOHN DEERE 6140M 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 |
|--|--------------------------------|-----------------|-----------------------|-----------------------|---|
| MAXIMUM POWER AND FUEL CONSUMPTION | | | | | |
| Rated Engine Speed—(PTO speed—1071 rpm) | | | | | |
| 115.91 (86.43) | 2101 | 7.06 (26.72) | 0.428 (0.260) | 16.42 (3.23) | Fuel used during active exhaust regeneration - 0.25 gal (0.96 l) (see Note 1 p.2) |
| Standard Power Take-off Speed (1000 rpm) | | | | | |
| 123.01 (91.73) | 1962 | 7.18 (27.18) | 0.410 (0.250) | 17.13 (3.37) | |
| Maximum Power (1 hour) | | | | | |
| 124.10 (92.54) | 1801 | 7.09 (26.85) | 0.402 (0.244) | 17.50 (3.45) | |

VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|-------------------|------|-----------------|-------------------|-----------------|-------------------|
| 115.91 (86.43) | 2101 | 7.06 (26.72) | 0.428 (0.260) | 16.42 (3.23) | Air temperature |
| 101.60 (75.76) | 2165 | 6.44 (24.39) | 0.446 (0.271) | 15.77 (3.11) | |
| 77.28 (57.63) | 2197 | 5.31 (20.11) | 0.483 (0.294) | 14.54 (2.87) | Relative humidity |
| 52.36 (39.05) | 2224 | 4.23 (16.01) | 0.568 (0.345) | 12.38 (2.44) | |
| 26.37 (19.66) | 2241 | 3.09 (11.69) | 0.823 (0.501) | 8.54 (1.68) | Barometer |
| 1.06 (0.79) | 2250 | 2.01 (7.62) | 13.358 (8.125) | 0.53 (0.10) | |

Maximum Torque - 416 lb.-ft. (565 Nm) at 1401 rpm

Maximum Torque rise - 43.8%

Torque rise at 1680 engine rpm - 32%

Power increase at 1801 rpm - 7.0%

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) |
|--|--------------------------------|------------------------|---------------------------------|-----------|---|-----------------------|--------------------------------------|--------------------|-------------------------------|
| Maximum Power—11th (C3) Gear | | | | | | | | | |
| 108.69 (81.05) | 7457 (33.17) | 5.47 (8.80) | 2100 | 4.6 | 0.460 (0.280) | 15.29 (3.01) | 189 (87) | 52 (11) | 28.69 (97.16) |
| 75% of Pull at Maximum Power—11th (C3) Gear | | | | | | | | | |
| 86.35 (64.39) | 5610 (24.95) | 5.77 (9.29) | 2193 | 3.4 | 0.499 (0.303) | 14.09 (2.78) | 189 (87) | 52 (11) | 28.68 (97.12) |
| 50% of Pull at Maximum Power—11th (C3) Gear | | | | | | | | | |
| 59.09 (44.06) | 3757 (16.71) | 5.90 (9.50) | 2214 | 2.3 | 0.566 (0.344) | 12.42 (2.45) | 188 (86) | 53 (11) | 28.67 (97.09) |
| 75% of Pull at Reduced Engine Speed—14th (D2) Gear | | | | | | | | | |
| 86.52 (64.51) | 5625 (25.02) | 5.77 (9.29) | 1600 | 3.5 | 0.457 (0.278) | 15.37 (3.03) | 189 (87) | 53 (12) | 28.67 (97.09) |
| 50% of Pull at Reduced Engine Speed—14th (D2) Gear | | | | | | | | | |
| 59.27 (44.20) | 3770 (16.77) | 5.90 (9.50) | 1617 | 2.3 | 0.503 (0.306) | 13.97 (2.75) | 188 (87) | 53 (11) | 28.67 (97.09) |

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

Dates of tests: October 24 to November 8, 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. *CD4045R021181* 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: 47.4 - 51.4 lb/h (21.5 - 23.3 kg/h) High idle: 2225 - 2275 rpm Turbo boost: nominal 19.6-22.5 psi (135-155 kPa) as measured 21.4 psi (148 kPa)

CHASSIS: Type front wheel assist Serial No. *11.06140MKDG765609* Tread width rear 64.2" (1630 mm) to 79.9" (2030 mm) front 63.9" (1622 mm) to 83.4" (2118 mm) Wheel base 108.9" (2765 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 0.96 (1.55) second 1.16 (1.87) third 1.39 (2.23) fourth 1.70 (2.74) fifth 2.35 (3.78) sixth 2.83 (4.55) seventh 3.39 (5.45) eighth 3.83 (6.17) ninth 4.15 (6.68) tenth 4.61 (7.42) eleventh 5.52 (8.89) twelfth 6.29 (10.12) thirteenth 6.77 (10.89) fourteenth 7.57 (12.18) fifteenth 9.07 (14.59) sixteenth 10.22 (16.44) seventeenth 11.10 (17.87) eighteenth 12.30 (19.80) nineteenth 13.79 (22.19) twentieth 14.73 (23.71) twenty-first 16.61 (26.73) twenty-second 18.05 (29.04) twenty-third 19.89 (32.01) twenty-fourth 24.36 (39.21)

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) | Temp. °F(°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) | |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|---|-------------------------------------|--------------------|-------------------------------|------------------|
| 7th (B3) Gear | | | | | | | | | |
| 96.16 (71.70) | 11600 (51.60) | 3.11 (5.00) | 2142 | 13.4 | 0.524 (0.319) | 13.42 (2.64) | 189 (87) | 43 (6) | 28.40 (96.17) |
| 8th (C1) Gear | | | | | | | | | |
| 102.47 (76.41) | 10523 (46.81) | 3.65 (5.87) | 2100 | 8.1 | 0.489 (0.298) | 14.37 (2.83) | 189 (87) | 50 (10) | 28.36 (96.04) |
| 9th (B4) Gear | | | | | | | | | |
| 102.58 (76.49) | 9556 (42.50) | 4.03 (6.49) | 2100 | 6.5 | 0.487 (0.296) | 14.43 (2.84) | 189 (87) | 48 (9) | 28.36 (96.04) |
| 10th (C2) Gear | | | | | | | | | |
| 105.20 (78.45) | 8731 (38.84) | 4.52 (7.27) | 2100 | 5.5 | 0.477 (0.290) | 14.73 (2.90) | 189 (87) | 52 (11) | 28.69 (97.16) |
| 11th (C3) Gear | | | | | | | | | |
| 108.69 (81.05) | 7457 (33.17) | 5.47 (8.80) | 2100 | 4.6 | 0.460 (0.280) | 15.29 (3.01) | 189 (87) | 52 (11) | 28.69 (97.16) |
| 12th (D1) Gear | | | | | | | | | |
| 106.41 (79.35) | 6375 (28.36) | 6.26 (10.07) | 2101 | 3.9 | 0.471 (0.286) | 14.94 (2.94) | 189 (87) | 52 (11) | 28.68 (97.12) |
| 13th (C4) Gear | | | | | | | | | |
| 105.62 (78.76) | 5855 (26.04) | 6.77 (10.89) | 2101 | 3.6 | 0.474 (0.288) | 14.82 (2.92) | 189 (87) | 52 (11) | 28.68 (97.12) |
| 14th (D2) Gear | | | | | | | | | |
| 104.06 (77.60) | 5137 (22.85) | 7.60 (12.22) | 2100 | 3.1 | 0.482 (0.293) | 14.58 (2.87) | 189 (87) | 52 (11) | 28.68 (97.12) |
| 15th (D3) Gear | | | | | | | | | |
| 105.67 (78.79) | 4339 (19.30) | 9.14 (14.70) | 2099 | 2.6 | 0.473 (0.288) | 14.85 (2.92) | 189 (87) | 52 (11) | 28.67 (97.09) |

reverse 1.01 (1.62), 1.21 (1.95), 1.45 (2.33), 1.78 (2.86), 2.45 (3.95), 2.95 (4.75), 3.54 (5.69), 4.00 (6.43), 4.33 (6.97), 4.82 (7.75), 5.77 (9.28), 6.56 (10.56), 7.07 (11.37), 7.90 (12.71), 9.46 (15.23), 10.66 (17.16), 11.59 (18.65), 12.84 (20.66), 14.39 (23.16), 15.37 (24.74), 17.33 (27.89), 18.83 (30.31), 20.75 (33.40), 25.43 (40.92) **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** 11970 lb (5429 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 2% 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 120°F (49°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. **2079**, Nebraska Summary 895, 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 10th (C2) Gear | 67.6 | 67.2 |
| Transport in 24th (F4) gear | | 70.8 |
| Bystander in 23rd (F3) gear | | 78.6 |

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 (85)
Two 380/85R28; **, 12 (85)
20.0 in (510 mm)
7345 lb (3332 kg)
4800 lb (2177 kg)
12145 lb (5509 kg)

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 | | | | | | | | | |
| 96.87 (72.23) | 11621 (51.69) | 3.13 (5.04) | 2139 | 12.9 | 0.520 (0.316) | 13.53 (2.66) | 189 (87) | 43 (6) | 28.39 (96.14) |
| 8th(C1) Gear | | | | | | | | | |
| 104.26 (77.75) | 11179 (49.72) | 3.50 (5.63) | 2042 | 9.6 | 0.487 (0.296) | 14.42 (2.84) | 188 (87) | 51 (10) | 28.35 (96.00) |
| 9th(B4) Gear | | | | | | | | | |
| 107.51 (80.17) | 10704 (47.61) | 3.77 (6.07) | 2000 | 8.1 | 0.475 (0.289) | 14.80 (2.92) | 190 (88) | 49 (9) | 28.36 (96.04) |
| 10th(C2) Gear | | | | | | | | | |
| 109.28 (81.49) | 10102 (44.93) | 4.06 (6.53) | 1930 | 7.8 | 0.466 (0.284) | 15.08 (2.97) | 189 (87) | 53 (12) | 28.33 (95.94) |
| 11th(C3) Gear | | | | | | | | | |
| 112.81 (84.12) | 9242 (41.11) | 4.58 (7.37) | 1801 | 6.9 | 0.447 (0.272) | 15.73 (3.10) | 189 (87) | 55 (13) | 28.32 (95.90) |
| 12th(D1) Gear | | | | | | | | | |
| 111.59 (83.21) | 7902 (35.15) | 5.30 (8.53) | 1803 | 5.3 | 0.451 (0.275) | 15.57 (3.07) | 189 (87) | 56 (13) | 28.30 (95.84) |
| 13th(C4) Gear | | | | | | | | | |
| 111.60 (83.22) | 7319 (32.55) | 5.72 (9.21) | 1800 | 4.9 | 0.451 (0.274) | 15.60 (3.07) | 188 (87) | 56 (13) | 28.31 (95.87) |
| 14th(D2) Gear | | | | | | | | | |
| 110.83 (82.64) | 6449 (28.69) | 6.45 (10.37) | 1801 | 4.2 | 0.455 (0.277) | 15.44 (3.04) | 189 (87) | 56 (14) | 28.30 (95.84) |
| 15th(D3) Gear | | | | | | | | | |
| 112.45 (83.85) | 5430 (24.15) | 7.77 (12.50) | 1799 | 3.4 | 0.447 (0.272) | 15.72 (3.10) | 190 (88) | 57 (14) | 28.29 (95.80) |
| 16th(E1) Gear | | | | | | | | | |
| 109.38 (81.56) | 4668 (20.76) | 8.79 (14.14) | 1799 | 3.0 | 0.459 (0.279) | 15.33 (3.02) | 191 (88) | 57 (14) | 28.29 (95.80) |

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) | Fuel Consumption Hp.hr/gal (kW.h/l) | Temp. °F cool- ing med | Temp. °C Air dry bulb | Barom. inch Hg (kPa) |
|---|--------------------------------|------------------------|---------------------------------|-----------|---|---|---------------------------------|--------------------------------|-------------------------------|
| Maximum Power—11th (C3) Gear | | | | | | | | | |
| 105.56 (78.72) | 7577 (33.70) | 5.23 (8.41) | 2100 | 7.4 | 0.474 (0.288) | 14.82 (2.92) | 188 (86) | 56 (13) | 28.31 (95.87) |
| 75% of Pull at Maximum Power—11th (C3) Gear | | | | | | | | | |
| 85.29 (63.60) | 5683 (25.28) | 5.63 (9.06) | 2194 | 4.4 | 0.495 (0.301) | 14.21 (2.80) | 189 (87) | 59 (15) | 28.29 (95.80) |
| 50% of Pull at Maximum Power—11th (C3) Gear | | | | | | | | | |
| 58.52 (43.64) | 3798 (16.89) | 5.78 (9.30) | 2217 | 2.9 | 0.559 (0.340) | 12.58 (2.48) | 188 (87) | 59 (15) | 28.29 (95.80) |
| 75% of Pull at Reduced Engine Speed—14th (D2) Gear | | | | | | | | | |
| 85.38 (63.66) | 5687 (25.30) | 5.63 (9.06) | 1602 | 4.4 | 0.456 (0.277) | 15.43 (3.04) | 189 (87) | 59 (15) | 28.28 (95.77) |
| 50% of Pull at Reduced Engine Speed—14th (D2) Gear | | | | | | | | | |
| 58.26 (43.44) | 3790 (16.86) | 5.76 (9.27) | 1614 | 2.8 | 0.490 (0.298) | 14.34 (2.83) | 188 (87) | 59 (15) | 28.28 (95.77) |
| MAXIMUM POWER IN SELECTED GEARS | | | | | | | | | |
| 9th (B4) Gear | | | | | | | | | |
| 95.00 (70.84) | 9202 (40.93) | 3.88 (6.24) | 2177 | 11.9 | 0.529 (0.322) | 13.29 (2.62) | 189 (87) | 50 (10) | 28.36 (96.04) |
| 10th (C2) Gear | | | | | | | | | |
| 99.09 (73.89) | 8570 (38.12) | 4.34 (6.98) | 2158 | 10.4 | 0.508 (0.309) | 13.84 (2.73) | 188 (87) | 55 (13) | 28.33 (95.94) |
| 11th (C3) Gear | | | | | | | | | |
| 105.56 (78.72) | 7577 (33.70) | 5.23 (8.41) | 2100 | 7.4 | 0.474 (0.288) | 14.82 (2.92) | 188 (86) | 56 (13) | 28.31 (95.87) |
| 12th (D1) Gear | | | | | | | | | |
| 104.70 (78.07) | 6480 (28.82) | 6.06 (9.75) | 2099 | 5.6 | 0.480 (0.292) | 14.64 (2.88) | 189 (87) | 56 (14) | 28.30 (95.84) |
| 13th (C4) Gear | | | | | | | | | |
| 104.51 (77.93) | 5978 (26.59) | 6.56 (10.55) | 2100 | 5.3 | 0.479 (0.292) | 14.67 (2.89) | 188 (87) | 56 (13) | 28.31 (95.87) |
| 14th (D2) Gear | | | | | | | | | |
| 103.05 (76.84) | 5221 (23.22) | 7.40 (11.91) | 2100 | 4.3 | 0.484 (0.294) | 14.53 (2.86) | 188 (87) | 57 (14) | 28.30 (95.84) |
| 15th (D3) Gear | | | | | | | | | |
| 106.70 (79.57) | 4474 (19.90) | 8.95 (14.40) | 2104 | 3.4 | 0.471 (0.286) | 14.94 (2.94) | 189 (87) | 57 (14) | 28.29 (95.80) |

HYDRAULIC PERFORMANCE

CATEGORY: IIIN

Quick Attach: none

OECD Static test

Maximum force exerted through whole range: 7130 lbs (31.7 kN) (85 mm cylinders)
7938 lbs (35.3 kN) (90 mm cylinders)

Two outlet sets combined

35 cc pump 45 cc pump

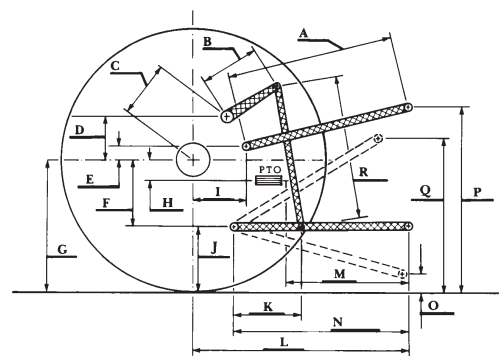
| | | |
|--|-----------------------|------------------------|
| i) Sustained pressure of the open relief valve: | 2966 psi (204 bar) | 2870 psi (198 bar) |
| ii) Pump delivery rate at minimum pressure and rated engine speed: | 22.2 GPM (84.0 l/min) | 31.2 GPM (118.0 l/min) |
| iii) Pump delivery rate at maximum hydraulic power: | 22.3 GPM (84.4 l/min) | 30.5 GPM (115.6 l/min) |
| Delivery pressure: | 2673 psi (184 bar) | 2607 psi (180 bar) |
| Power: | 34.8 HP (25.9 kW) | 46.5 HP (34.6 kW) |

single outlet set

| | | |
|--|-----------------------|------------------------|
| ii) Pump delivery rate at minimum pressure and rated engine speed: | 22.1 GPM (83.8 l/min) | 31.0 GPM (117.5 l/min) |
| iii) Pump delivery rate at maximum hydraulic power: | 22.4 GPM (84.9 l/min) | 31.2 GPM (117.9 l/min) |
| Delivery pressure: | 2623 psi (181 bar) | 2079 psi (143 bar) |
| Power: | 34.3 HP (25.6 kW) | 37.8 HP (28.2 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 6140M DIESEL

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