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## Test 1626: John Deere 4055 Quadrange Diesel 16-Speed

Nebraska Tractor Test Lab

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

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# NEBRASKA OECD TRACTOR TEST 1626—SUMMARY 064

## JOHN DEERE 4055 QUADRANGE DIESEL

### 16 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—1002 rpm)</b>					
108.70 (81.06)	2200	6.75 (25.56)	0.429 (0.261)	16.10 (3.17)	
<b>Maximum Power (2 Hours)</b>					
114.11 (85.09)	1950	6.66 (25.22)	0.404 (0.245)	17.12 (3.37)	
<b>VARYING POWER AND FUEL CONSUMPTION</b>					
108.70 (81.06)	2200	6.75 (25.56)	0.429 (0.261)	16.10 (3.17)	Air temperature
					72°F (22°C)
96.03 (71.61)	2289	6.38 (24.16)	0.459 (0.279)	15.05 (2.96)	Relative humidity
					76%
72.79 (54.28)	2308	5.38 (20.38)	0.511 (0.311)	13.52 (2.66)	Barometer
48.99 (36.53)	2328	4.38 (16.60)	0.619 (0.376)	11.17 (2.20)	28.73" Hg (97.30 kPa)
24.64 (18.37)	2344	3.39 (12.82)	0.950 (0.578)	7.27 (1.43)	
0.77 (0.57)	2366	2.47 (9.37)	22.217 (13.514)	0.31 (0.06)	

Maximum Torque 349 lb.-ft (473 Nm) at 1202 rpm

Maximum Torque Rise 34%

Torque Rise at 1000 engine rpm 32%

#### DRAWBAR PERFORMANCE

#### 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—7th (B2) Gear</b>									
100.07 (74.62)	6239 (27.75)	6.01 (9.68)	2201	3.23	0.468 (0.285)	14.76 (2.91)	186 (85)	58 (14)	29.18 (98.81)
<b>75% of Pull at Maximum Power—7th (B2) Gear</b>									
79.21 (59.07)	4680 (20.82)	6.35 (10.22)	2305	2.50	0.516 (0.314)	13.40 (2.64)	180 (82)	61 (16)	29.11 (98.58)
<b>50% of Pull at Maximum Power—7th (B2) Gear</b>									
53.57 (39.95)	3115 (13.85)	6.45 (10.38)	2325	1.75	0.615 (0.374)	11.23 (2.21)	178 (81)	61 (16)	29.11 (98.58)
<b>75% of Pull at Reduced Engine Speed—9th (B3) Gear</b>									
79.09 (58.98)	4677 (20.80)	6.34 (10.21)	1770	2.41	0.464 (0.282)	14.89 (2.93)	181 (83)	61 (16)	29.10 (98.54)
<b>50% of Pull at Reduced Engine Speed—9th (B3) Gear</b>									
53.75 (40.08)	3121 (13.88)	6.46 (10.39)	1789	1.84	0.529 (0.322)	13.07 (2.58)	175 (79)	61 (16)	29.10 (98.54)

**Location of Test:** Center for Agricultural Equipment, Lincoln Nebraska 68583-0832, U.S.A.

**Dates of Test:** September, 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME:** Fuel No. 2 Diesel Cetane No. 51.1 Specific gravity converted to 60°/60°F (15°/15°C) 0.8300 Fuel weight 6.910 lbs/gal (0.828 kg/l) Oil SAE 15W40 API service classification CD/SD To motor 3.772 gal (14.280 l) Drained from motor 3.521 gal (13.328 l) Transmission and hydraulic lubricant John Deere HyGard fluid Total time engine was operated 27.0 hours.

**ENGINE:** Make John Deere Diesel Type six cylinder vertical with turbocharger Serial No. \*RG6076T109206\* Crankshaft lengthwise Rated engine speed 2200 Bore and stroke (as specified) 4.56" × 4.75" (115.8 mm × 120.7 mm) Compression ratio 16.0 to 1 Displacement 466 cu in (7634 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 and prefilter Muffler vertical Cooling medium temperature control 2 thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS:** Fuel rate 44.1-48.2 lb/hr (20.0-21.8 kg/hr) High idle 2350-2400 rpm Turbo boost nominal 10-13 psi (69-90 kPa) as measured 12.5 psi (86 kPa).

**CHASSIS:** Type standard Serial No. \*RW4055H001731\* Tread width rear 62.0" (1574 mm) to 110.2" (2800 mm) front 58.0" (1470 mm) to 82.0" (2080 mm) Wheel base 106.7" (2710 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (2) operator controlled powershift Nominal travel speeds mph (km/h) first 2.14 (3.44) second 2.71 (4.37) third 3.53 (5.69) fourth 4.48 (7.22) fifth 4.92 (7.92) sixth 5.83 (9.38) seventh 6.25 (10.06) eighth 7.40 (11.92) ninth 8.12 (13.08) tenth 8.95 (14.40) eleventh 9.63 (15.50) twelfth 10.32 (16.61) thirteenth 11.36 (18.29) fourteenth 12.23 (19.69) fifteenth 14.78 (23.80) sixteenth 18.77 (30.23) reverse 3.42 (5.51), 4.34 (7.00), 7.87 (12.67), 9.32 (15.01), 10.00 (16.09), 11.84 (19.07) Clutch multiple wet disc hydraulically power actuated by foot pedal Brakes multiple wet disc hydraulically power actuated by two foot pedals which can be locked together Steering hydrostatic Power take-off 540 rpm at 2201 engine rpm and 1002 rpm at 2200 engine rpm Unladen tractor mass 12130 lb (5502 kg).

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

# **DRAWBAR PERFORMANCE AT 1950 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)
3rd (A3) Gear									
85.56 (63.80)	10511 (46.76)	3.05 (4.91)	2232	14.37	0.544 (0.331)	12.71 (2.50)	183 (84)	54 (12)	29.07 (98.44)
4th (A4) Gear									
98.03 (73.10)	9373 (41.69)	3.92 (6.31)	2072	6.65	0.472 (0.287)	14.65 (2.89)	187 (86)	60 (16)	29.13 (98.65)
5th (B1) Gear									
100.07 (74.62)	9185 (40.85)	4.09 (6.58)	1952	5.90	0.461 (0.280)	15.00 (2.95)	187 (86)	58 (14)	29.16 (98.75)
6th (C1) Gear									
101.53 (75.71)	7743 (34.44)	4.92 (7.91)	1953	4.58	0.453 (0.276)	15.25 (3.00)	185 (85)	58 (14)	29.16 (98.75)
7th (B2) Gear									
102.62 (76.52)	7273 (32.35)	5.29 (8.52)	1950	3.95	0.447 (0.272)	15.48 (3.05)	185 (85)	58 (14)	29.18 (98.81)
8th (C2) Gear									
102.55 (76.47)	6085 (27.07)	6.32 (10.17)	1951	3.31	0.446 (0.271)	15.50 (3.05)	186 (85)	58 (14)	29.17 (98.78)
9th (B3) Gear									
101.95 (76.02)	5500 (24.47)	6.95 (11.19)	1950	2.99	0.451 (0.274)	15.32 (3.02)	187 (86)	59 (15)	29.15 (98.71)
10th (D1) Gear									
101.42 (75.63)	4960 (22.06)	7.67 (12.34)	1947	2.66	0.454 (0.276)	15.24 (3.00)	188 (86)	59 (15)	21.15 (98.71)
11th (C3) Gear									
100.87 (75.22)	4562 (20.29)	8.29 (13.35)	1952	2.41	0.454 (0.276)	15.23 (3.00)	187 (86)	60 (16)	29.14 (98.68)

# **DRAWBAR PERFORMANCE AT 1950 RPM** **MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR**

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)
1st (A1) Gear									
67.58 (50.39)	13347 (59.37)	1.90 (3.06)	2302	14.53	0.597 (0.363)	11.58 (2.28)	184 (84)	68 (20)	28.93 (97.97)
2nd (A2) Gear									
84.96 (63.36)	13330 (59.29)	2.39 (3.85)	2279	14.40	0.550 (0.335)	12.56 (2.47)	186 (86)	66 (19)	28.92 (97.93)
3rd (A3) Gear									
97.75 (72.89)	11791 (52.45)	3.11 (5.00)	2076	6.25	0.479 (0.291)	14.42 (2.84)	188 (87)	71 (22)	28.93 (97.97)
4th (A4) Gear									
100.82 (75.18)	9689 (43.10)	3.90 (6.28)	2015	4.32	0.459 (0.279)	15.07 (2.97)	188 (87)	73 (23)	28.92 (97.93)
5th (B1) Gear									
100.63 (75.04)	9062 (40.31)	4.16 (6.70)	1956	3.93	0.458 (0.279)	15.08 (2.97)	189 (87)	74 (23)	28.92 (97.93)
6th (C1) Gear									
100.68 (75.08)	7603 (33.82)	4.97 (7.99)	1951	3.29	0.456 (0.278)	15.14 (2.98)	189 (87)	76 (24)	28.91 (97.90)
7th (B2) Gear									
102.87 (76.71)	7234 (32.18)	5.33 (8.58)	1953	3.13	0.451 (0.274)	15.33 (3.02)	189 (87)	76 (24)	28.91 (97.90)
8th (C2) Gear									
101.65 (75.80)	5994 (26.66)	6.36 (10.23)	1954	2.64	0.455 (0.277)	15.19 (2.99)	186 (86)	80 (27)	28.91 (97.90)
9th (B3) Gear									
98.67 (73.58)	5289 (23.53)	7.00 (11.26)	1952	2.23	0.468 (0.284)	14.78 (2.91)	185 (85)	80 (27)	28.90 (97.87)
10th (D1) Gear									
97.86 (72.97)	4760 (21.17)	7.71 (12.41)	1949	2.07	0.470 (0.286)	14.70 (2.90)	186 (85)	80 (27)	28.90 (97.87)
11th (C3) Gear									
98.40 (73.38)	4440 (19.75)	8.31 (13.38)	1949	1.99	0.469 (0.285)	14.74 (2.90)	190 (88)	80 (27)	28.90 (97.87)

**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 return was maintained at 128° F (54° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 3 point lift capacity claim of 6550 lb (2971 kg) or 8470 lb (3842 kg) with lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1626**, Summary 064, December 22, 1989.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

R. D. GRISIO

G. J. HOFFMAN

Board of Tractor Test Engineers

# DRAWBAR PERFORMANCE AT 2200 RPM

## MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR

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)
2nd (A2) Gear									
86.90 (64.80)	13378 (59.51)	2.44 (3.92)	2277	12.86	0.537 (0.327)	12.87 (2.53)	186 (85)	66 (19)	28.92 (97.93)
3rd (A3) Gear									
96.02 (71.60)	10800 (48.04)	3.33 (5.37)	2199	4.95	0.489 (0.297)	14.14 (2.78)	188 (86)	70 (21)	28.93 (97.97)
4th (A4) Gear									
99.19 (73.96)	8677 (38.59)	4.29 (6.90)	2201	3.77	0.479 (0.292)	14.42 (2.84)	188 (87)	72 (22)	28.92 (97.93)
5th (B1) Gear									
98.17 (73.20)	7783 (34.62)	4.73 (7.61)	2203	3.29	0.483 (0.294)	14.30 (2.82)	188 (87)	74 (23)	28.92 (97.93)
6th (C1) Gear									
98.00 (73.08)	6535 (29.07)	5.62 (9.05)	2199	2.80	0.483 (0.294)	14.30 (2.82)	189 (87)	75 (24)	28.91 (97.90)
7th (B2) Gear									
99.09 (73.89)	6161 (27.41)	6.03 (9.71)	2197	2.64	0.478 (0.291)	14.46 (2.85)	189 (87)	76 (24)	28.91 (97.90)
8th (C2) Gear									
98.47 (73.43)	5145 (22.88)	7.18 (11.55)	2197	2.23	0.478 (0.291)	14.46 (2.85)	189 (87)	79 (26)	28.91 (97.90)
9th (B3) Gear									
96.75 (72.14)	4587 (20.40)	7.91 (12.73)	2200	1.99	0.488 (0.297)	14.16 (2.79)	189 (87)	80 (27)	28.91 (97.90)
10th (D1) Gear									
96.02 (71.60)	4131 (18.38)	8.72 (14.03)	2197	1.90	0.491 (0.299)	14.08 (2.77)	189 (87)	80 (27)	28.90 (97.87)

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Gear closest to 4.7 mph (7.5 km/h)—5th (B1) Gear	76.0
Maximum sound level	77.0
Transport speed—no load—16th (D4) Gear	75.5
Bystander in 16th (D4) Gear	86.5

## LUGGING ABILITY IN 7th (B2) GEAR

Crankshaft Speed rpm	2197	1982	1759	1541	1317	1099
Pull—lbs (kN)	6161 (27.41)	6906 (30.72)	7457 (33.17)	7891 (35.10)	8133 (36.18)	8114 (36.09)
Increase in Pull %	0	12	21	28	32	32
Power—Hp (kW)	99.09 (73.89)	99.86 (74.46)	95.49 (71.21)	88.32 (65.86)	77.59 (57.86)	64.61 (48.18)
Speed—Mph (km/h)	6.03 (9.71)	5.42 (8.73)	4.80 (7.73)	4.20 (6.75)	3.58 (5.76)	2.99 (4.81)
Slip %	2.64	3.13	3.13	3.45	3.77	3.61

## THREE POINT HITCH PERFORMANCE (SAE Static Test)

Observed Maximum Pressure psi. (bar)	2540 (175)				
Location	remote outlet				
Hydraulic oil temperature °F(°C)	139 (59)				
Location	transmission sump				
Category	II				
Quick attach	No				
Hitch point distance to ground level in. (mm)	8.7 (221)	15.7 (399)	22.4 (569)	30.4 (772)	37.4 (950)
Lift force on frame lb. " " " " " (kN)	7550 (33.6)	7482 (33.3)	7199 (32.0)	6526 (29.0)	6175 (27.5)
with lift assist cylinder					
Hitch point distance to ground level in. (mm)	9.0 (229)	16.0 (406)	22.3 (566)	30.4 (772)	37.4 (950)
Lift force on frame lb. " " " " " (kN)	9833 (43.7)	9872 (43.9)	9540 (42.4)	8633 (38.4)	8077 (35.9)

## TIRES AND WEIGHT

<b>Rear Tires</b> —No., size, ply & psi (kPa)	<b>With Ballast</b> Four 18.4R38; *, 12 (85)	<b>Without Ballast</b> Two 18.4R38; *, 16 (110)
<b>Ballast</b> —Liquid (total)	None	None
—Duals (total)	1410 lb (640 kg)	None
<b>Front Tires</b> —No., size, ply & psi (kPa)	Two 11.00-16; 8; 40 (275)	Two 11.00-16; 8; 40 (275)
<b>Ballast</b> —Liquid (total)	None	None
—Test Equip (total)	120 lb (54 kg)	None
<b>Height of Drawbar</b>	23.0 in (585 mm)	22.5 in (570 mm)
<b>Static Weight</b> —Rear	9860 lb (4472 kg)	8315 lb (3772 kg)
—Front	3800 lb (1724 kg)	3815 lb (1730 kg)
—Total	13660 lb (6196 kg)	12130 lb (5502 kg)

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range:

5504 lbs (24.5 kN)

\*7281 lbs (32.4 kN)

NA

i) Opening pressure of relief valve:

Sustained pressure with pump stalled:

2540 psi (175 Bar)

ii) Pump delivery rate at minimum pressure:

27.6 GPM (104.5 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

26.1 GPM (98.8 l/min)

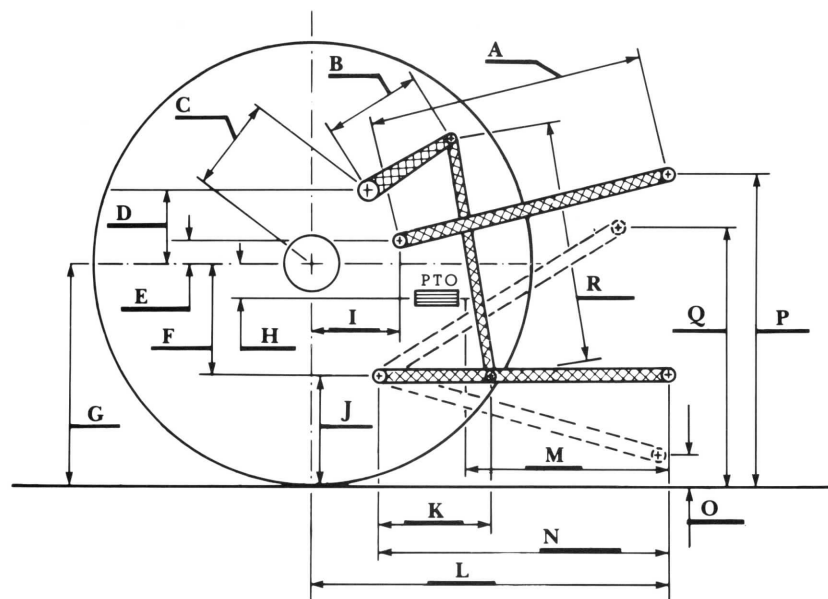
Delivery pressure:

2100 psi (145 Bar)

Power:

32.0 Hp (23.8 kW)

\*with lift assist cylinder



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	26.6	676
B	11.5	292
C	11.3	287
D	10.9	278
E	5.5	140
F	10.2	259
G	33.1	842
H	6.5	165
I	13.5	343
J	22.9	583
K	23.1	587
L	41.2	1046
M	21.6	549
N	36.7	932
O	8.3	211
P	43.0	1093
Q	35.5	903
R	32.8	833



John Deere 4055 Quadrange Diesel

Agricultural Research Division  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
Darrell Nelson, Dean and Director