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January 1989

Test 1627: John Deere 4255 Quadrange Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1627—SUMMARY 065

JOHN DEERE 4255 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1002 rpm)					
123.69 (92.23)	2200	7.51 (28.44)	0.420 (0.255)	16.46 (3.24)	

Maximum Power (2 Hours)					
127.91 (95.38)	1900	7.23 (27.38)	0.391 (0.238)	17.68 (3.48)	

VARYING POWER AND FUEL CONSUMPTION

123.69 (92.23)	2200	7.51 (28.44)	0.420 (0.255)	16.46 (3.24)	Air temperature 74°F (23°C)
109.79 (81.87)	2296	7.08 (26.79)	0.445 (0.271)	15.51 (3.06)	Relative humidity 30%
83.35 (62.15)	2322	5.90 (22.35)	0.490 (0.298)	14.12 (2.78)	Barometer 29.16" Hg (98.76 kPa)
55.92 (41.70)	2343	4.73 (17.91)	0.585 (0.356)	11.82 (2.33)	
28.17 (21.01)	2361	3.65 (13.80)	0.895 (0.544)	7.72 (1.52)	
1.03 (0.77)	2379	2.56 (9.70)	17.152 (10.433)	0.40 (0.08)	

Maximum Torque 395 lb.-ft (535 Nm) at 1252 rpm

Maximum Torque Rise 34%

Torque Rise at 1000 engine rpm 27%

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)
Maximum Power—8th (C2) Gear									
112.26 (83.71)	5925 (26.36)	7.11 (11.43)	2201	3.13	0.460 (0.280)	15.01 (2.96)	185 (85)	64 (18)	29.07 (98.44)
75% of Pull at Maximum Power—8th (C2) Gear									
89.67 (66.87)	4479 (19.92)	7.51 (12.08)	2308	2.48	0.503 (0.306)	13.75 (2.71)	183 (84)	66 (19)	29.00 (98.21)
50% of Pull at Maximum Power—8th (C2) Gear									
60.50 (45.12)	2967 (13.20)	7.65 (12.31)	2332	1.66	0.596 (0.362)	11.60 (2.28)	180 (82)	66 (19)	29.00 (98.21)
75% of Pull at Reduced Engine Speed—11th (C3) Gear									
89.63 (66.83)	4479 (19.92)	7.50 (12.08)	1772	2.40	0.452 (0.275)	15.28 (3.01)	182 (83)	67 (19)	29.00 (98.21)
50% of Pull at Reduced Engine Speed—11th (C3) Gear									
60.45 (45.07)	2967 (13.20)	7.64 (12.30)	1791	1.66	0.507 (0.309)	13.62 (2.68)	177 (80)	68 (20)	29.00 (98.21)

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 4.066 gal (15.392 l) Drained from motor 3.880 gal (14.686 l) Transmission and hydraulic lubricant John Deere HyGard fluid Total time engine was operated 23.0 hours.

ENGINE: Make John Deere Diesel Type six cylinder vertical with turbocharger Serial No. *RG6076T109300* 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 cartridge and prefilter Muffler vertical Cooling medium temperature control 2 thermostats and variable speed fan.

ENGINE OPERATING PARAMETERS: Fuel rate 49.6-54.1 lb/hr (22.5-24.5 kg/hr) High idle 2350-2400 rpm Turbo boost nominal 12-15 psi (83-103 kPa) as measured 14.8 psi (102 kPa).

CHASSIS: Type standard Serial No. *RW4255H001914* 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 12225 lb (5545 kg).

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

DRAWBAR PERFORMANCE AT 1900 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									
95.79 (71.43)	10697 (47.58)	3.36 (5.40)	2297	8.24	0.509 (0.310)	13.57 (2.67)	182 (83)	51 (11)	29.04 (98.34)
4th (A4) Gear									
110.24 (82.21)	10175 (45.26)	4.06 (6.54)	2166	7.29	0.470 (0.286)	14.70 (2.90)	183 (84)	54 (12)	29.04 (98.34)
5th (B1) Gear									
111.90 (83.45)	9737 (43.31)	4.31 (6.94)	2076	6.32	0.458 (0.279)	15.08 (2.97)	184 (84)	58 (14)	29.04 (98.34)
6th (C1) Gear									
112.53 (83.91)	8964 (39.87)	4.71 (7.58)	1902	5.56	0.445 (0.271)	15.53 (3.06)	186 (85)	64 (18)	29.03 (98.31)
7th (B2) Gear									
114.64 (85.49)	8482 (37.73)	5.07 (8.16)	1898	5.10	0.440 (0.268)	15.70 (3.09)	185 (85)	64 (18)	29.08 (98.48)
8th (C2) Gear									
115.59 (86.19)	7124 (31.69)	6.08 (9.79)	1901	4.01	0.436 (0.265)	15.86 (3.13)	186 (85)	64 (18)	29.06 (98.41)
9th (B3) Gear									
114.23 (85.18)	6368 (28.32)	6.73 (10.83)	1904	3.37	0.438 (0.266)	15.78 (3.11)	186 (86)	64 (18)	29.05 (98.37)
10th (D1) Gear									
114.26 (85.21)	5769 (25.66)	7.43 (11.95)	1901	3.13	0.439 (0.267)	15.74 (3.10)	186 (86)	64 (18)	29.04 (98.34)
11th (C3) Gear									
113.61 (84.72)	5322 (23.67)	8.01 (12.88)	1899	2.81	0.440 (0.268)	15.71 (3.10)	186 (86)	64 (18)	29.04 (98.34)

DRAWBAR PERFORMANCE AT 1900 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									
93.89 (70.01)	14627 (65.06)	2.41 (3.87)	2293	14.04	0.535 (0.325)	12.92 (2.54)	181 (83)	55 (13)	29.14 (98.68)
3rd (A3) Gear									
109.72 (81.82)	12994 (57.80)	3.17 (5.10)	2123	6.37	0.472 (0.287)	14.64 (2.88)	186 (85)	64 (18)	29.12 (98.61)
4th (A4) Gear									
112.87 (84.17)	10837 (48.21)	3.91 (6.29)	2023	4.29	0.452 (0.275)	15.27 (3.01)	186 (85)	72 (22)	29.11 (98.58)
5th (B1) Gear									
112.06 (83.56)	10402 (46.27)	4.04 (6.50)	1901	4.14	0.449 (0.273)	15.40 (3.03)	186 (85)	72 (22)	29.10 (98.54)
6th (C1) Gear									
111.66 (83.26)	8678 (38.60)	4.83 (7.77)	1901	3.26	0.448 (0.272)	15.43 (3.04)	185 (85)	72 (22)	29.08 (98.48)
7th (B2) Gear									
115.42 (86.07)	8378 (37.27)	5.17 (8.31)	1897	3.18	0.434 (0.264)	15.91 (3.13)	187 (86)	74 (23)	29.07 (98.44)
8th (C2) Gear									
115.69 (86.27)	7028 (31.26)	6.17 (9.93)	1902	2.61	0.435 (0.264)	15.90 (3.13)	188 (86)	76 (24)	29.06 (98.41)
9th (B3) Gear									
113.45 (84.60)	6268 (27.88)	6.79 (10.92)	1901	2.45	0.443 (0.270)	15.59 (3.07)	188 (86)	76 (24)	29.06 (98.41)
10th (D1) Gear									
112.56 (83.94)	5634 (25.06)	7.49 (12.06)	1901	2.29	0.447 (0.272)	15.47 (3.05)	187 (86)	76 (24)	29.06 (98.41)
11th (C3) Gear									
112.07 (83.57)	5201 (23.14)	8.08 (13.00)	1900	2.04	0.447 (0.272)	15.47 (3.05)	188 (86)	77 (25)	29.06 (98.41)

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 123° F (50° 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 pull in 3rd (A3) gear (unballasted tractor) was limited by tire tangential pull. 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. **1627**, Summary 065, 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									
93.99 (70.09)	14635 (65.10)	2.41 (3.88)	2293	14.04	0.534 (0.325)	12.93 (2.55)	182 (83)	55 (13)	29.13 (98.65)
3rd (A3) Gear									
108.17 (80.66)	12231 (54.41)	3.32 (5.34)	2200	5.38	0.479 (0.291)	14.42 (2.84)	184 (84)	62 (17)	29.12 (98.61)
4th (A4) Gear									
109.92 (81.97)	9632 (42.84)	4.28 (6.89)	2200	3.66	0.469 (0.285)	14.74 (2.90)	185 (85)	68 (20)	29.11 (98.58)
5th (B1) Gear									
109.83 (81.90)	8738 (38.87)	4.71 (7.59)	2200	3.34	0.473 (0.288)	14.62 (2.88)	185 (85)	72 (22)	29.10 (98.54)
6th (C1) Gear									
109.76 (81.85)	7326 (32.59)	5.62 (9.04)	2201	2.78	0.474 (0.288)	14.59 (2.87)	186 (85)	72 (22)	29.09 (98.51)
7th (B2) Gear									
111.90 (83.44)	6973 (31.02)	6.02 (9.69)	2197	2.61	0.465 (0.283)	14.86 (2.93)	185 (85)	76 (24)	29.07 (98.44)
8th (C2) Gear									
110.56 (82.44)	5776 (25.69)	7.18 (11.55)	2202	2.20	0.470 (0.286)	14.70 (2.90)	185 (85)	76 (24)	29.06 (98.41)
9th (B3) Gear									
109.55 (81.69)	5199 (23.13)	7.90 (12.72)	2203	2.04	0.474 (0.288)	14.57 (2.87)	185 (85)	76 (24)	29.06 (98.41)
10th (D1) Gear									
108.18 (80.67)	4657 (20.72)	8.71 (14.02)	2201	1.96	0.480 (0.292)	14.41 (2.84)	186 (86)	76 (24)	29.06 (98.41)

TRACTOR SOUND LEVEL WITH CAB **dB(A)**

Gear closest to 4.7 mph (7.5 km/h)—5th (B1) Gear	76.5
Maximum sound level	76.5
Transport speed—no load—16th (D4) Gear	75.5
Bystander in 16th (D4) Gear	85.0

LUGGING ABILITY IN 7th (B2) GEAR

Crankshaft Speed rpm	2197	1985	1755	1539	1322	1101
Pull—lbs (kN)	6973 (31.02)	7907 (35.17)	8771 (39.02)	9086 (40.42)	9268 (41.23)	9148 (40.69)
Increase in Pull %	0	13	26	30	33	31
Power—Hp (kW)	111.90 (83.44)	114.26 (85.21)	111.65 (83.26)	101.23 (75.49)	88.60 (66.07)	72.84 (54.32)
Speed—Mph (km/h)	6.02 (9.69)	5.42 (8.72)	4.77 (7.68)	4.18 (6.72)	3.59 (5.77)	2.99 (4.81)
Slip %	2.61	3.10	3.26	3.58	3.58	3.58

THREE POINT HITCH PERFORMANCE (SAE Static Test)

Observed Maximum Pressure psi. (bar)	2570 (177)				
Location	remote outlet				
Hydraulic oil temperature °F(°C)	140 (60)				
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

	With Ballast	Without Ballast
Rear Tires —No., size, ply & psi (kPa)	Four 18.4R38; *, 12 (85)	Two 18.4R38; *, 16 (110)
Ballast —Duals (total)	1410 lb (640 kg)	None
—Cast Iron (total)	1000 lb (454 kg)	None
Front Tires —No., size, ply & psi (kPa)	Two 11.00-16; 8; 40 (275)	Two 11.00-16; 8; 40 (275)
Ballast —Liquid (total)	None	None
—Test Equip (total)	170 lb (77 kg)	None
Height of Drawbar	21.5 in (545 mm)	22 in (560 mm)
Static Weight —Rear	11015 lb (4996 kg)	8430 lb (3824 kg)
—Front	3790 lb (1719 kg)	3795 lb (1721 kg)
—Total	14805 lb (6715 kg)	12225 lb (5545 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)

i) Opening pressure of relief valve:

NA

Sustained pressure with pump stalled:

2570 psi (177 Bar)

ii) Pump delivery rate at minimum pressure:

27.4 GPM (103.7 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

26.3 GPM (99.6 l/min)

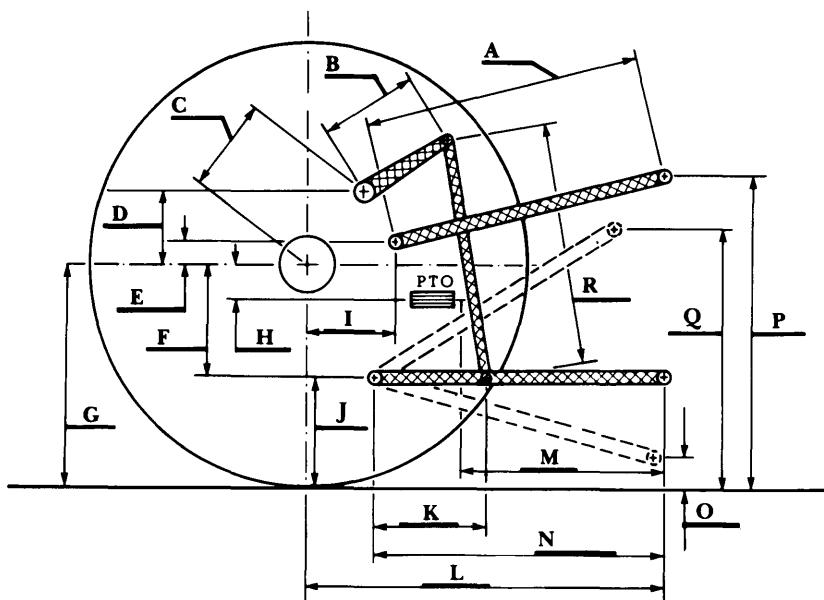
Delivery pressure:

2100 psi (145 Bar)

Power:

32.2 Hp (24.0 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	5.6	143
F	10.1	256
G	33.1	842
H	6.5	165
I	14.3	362
J	22.9	583
K	23.1	587
L	41.6	1056
M	22.0	558
N	37.1	942
O	8.3	211
P	43.0	1093
Q	35.5	903
R	32.8	833

**John Deere 4255 Quadrange Diesel**

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