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Test 1590: John Deere 4050 Quadrange Diesel 16-Speed (Chassis S/N RW4050H006510 and Higher)

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1590—JOHN DEERE 4050 QUADRANGE DIESEL 16 SPEED

CHASSIS SERIAL NUMBERS RW4050H006510 AND HIGHER

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption			Temperature °F (°C)			Barometer inch Hg (kPa)	
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb		
MAXIMUM POWER AND FUEL CONSUMPTION									
Rated Engine Speed — Two hours (PTO Speed — 1003 rpm)									
105.89 (78.96)	2201	6.147 (23.267)	0.407 (0.247)	17.23 (3.394)	196 (91.3)	57 (14.0)	74 (23.6)	28.69 (96.88)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
92.39 (68.89)	2258	5.621 (21.277)	0.426 (0.259)	16.44 (3.238)	192 (88.9)	59 (14.7)	79 (25.8)	..... .....
0.00 (0.00)	2374	1.982 (7.503)	..... .....	..... .....	..... .....	56 (13.3)	74 (23.1)	..... .....
47.38 (35.33)	2317	3.737 (14.147)	0.553 (0.336)	12.68 (2.497)	185 (84.7)	59 (14.7)	79 (26.1)	..... .....
106.59 (79.48)	2200	6.113 (23.140)	0.402 (0.244)	17.44 (3.435)	196 (90.8)	62 (16.7)	76 (24.2)	..... .....
24.00 (17.90)	2348	2.928 (11.084)	0.855 (0.520)	8.20 (1.615)	181 (82.8)	64 (17.5)	75 (23.6)	..... .....
70.25 (52.39)	2292	4.662 (17.647)	0.465 (0.283)	15.07 (2.969)	187 (85.8)	63 (17.2)	76 (24.2)	..... .....
Av Av	56.77 (42.33)	2298	4.174 (15.800)	0.515 (0.313)	13.60 (2.679)	188 (86.6)	60 (15.7)	76 (24.5)	28.65 (96.76)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			Barom. inch Hg (kPa)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling med	Air wet bulb	Air dry bulb	
Maximum Available Power — Two Hours 7th (B2) Gear											
94.99 (70.83)	6085 (27.07)	5.85 (9.42)	2199	4.88	6.193 (23.443)	0.457 (0.278)	15.34 (3.021)	191 (88.1)	58 (14.4)	68 (19.7)	28.91 (97.61)
75% of Pull at Maximum Power — Ten Hours 7th (B2) Gear											
75.80 (56.53)	4617 (20.54)	6.16 (9.91)	2285	3.72	5.318 (20.132)	0.492 (0.299)	14.25 (2.808)	186 (85.6)	56 (13.6)	63 (17.2)	28.66 (96.77)
50% of Pull at Maximum Power — Two Hours 7th (B2) Gear											
51.85 (38.67)	3081 (13.70)	6.31 (10.16)	2313	2.47	4.274 (16.178)	0.578 (0.351)	12.13 (2.390)	185 (85.0)	58 (14.4)	72 (21.9)	28.91 (97.61)
50% of Pull at Reduced Engine Speed — Two Hours 12th (B4) Gear											
51.84 (38.66)	3081 (13.70)	6.31 (10.16)	1399	2.43	3.332 (12.613)	0.450 (0.274)	15.56 (3.065)	184 (84.4)	57 (13.6)	71 (21.7)	28.89 (97.56)
MAXIMUM POWER IN SELECTED GEARS											
71.75 (53.51)	11381 (50.62)	2.36 (3.81)	2277	14.62	2nd (A2) Gear			186 (85.6)	62 (16.7)	66 (18.9)	28.62 (96.65)
88.45 (65.96)	10816 (48.11)	3.07 (4.94)	2202	11.99	3rd (A3) Gear			188 (86.7)	62 (16.7)	66 (18.9)	28.63 (96.68)
93.20 (69.50)	8573 (38.13)	4.08 (6.56)	2202	7.84	4th (A4) Gear			191 (88.3)	62 (16.7)	66 (18.9)	28.64 (96.71)
94.17 (70.22)	7825 (34.81)	4.51 (7.26)	2201	6.89	5th (B1) Gear			191 (88.1)	63 (17.2)	65 (18.3)	28.68 (96.85)
94.14 (70.20)	6506 (28.94)	5.43 (8.73)	2200	5.53	6th (C1) Gear			190 (87.8)	62 (16.7)	66 (18.9)	28.68 (96.85)
96.35 (71.85)	6167 (27.43)	5.86 (9.43)	2201	4.92	7th (B2) Gear			192 (88.6)	57 (13.9)	69 (20.6)	28.91 (97.62)
96.03 (71.61)	5139 (22.86)	7.01 (11.28)	2202	4.06	8th (C2) Gear			187 (86.1)	56 (13.3)	61 (16.1)	28.86 (97.46)
94.99 (70.84)	4616 (20.53)	7.72 (12.42)	2199	3.67	9th (B3) Gear			187 (86.1)	57 (13.9)	63 (17.2)	28.88 (97.52)
93.40 (69.65)	4104 (18.26)	8.53 (13.73)	2199	3.27	10th (D1) Gear			188 (86.7)	58 (14.4)	64 (17.8)	28.89 (97.56)

Department of Agricultural Engineering

Dates of Test: April 1 to 9, 1986

Manufacturer: JOHN DEERE TRACTOR
WORKS, P.O. Box 3500, Waterloo, Iowa 50704

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 46.9 (rating taken from oil company's
inspection data) **Specific gravity converted to 60/
60°F (15/15°C)** 0.8417 **Fuel weight** 7.008 lbs/gal
(0.840 kg/l) **Oil** SAE 15W-40 **API service classi-
fication** CD, CC, SD **To motor** 3.991 gal (15.107
l) **Drained from motor** 3.831 gal (14.501 l) **Trans-
mission and final drive lubricant** John Deere Hy-
gard transmission and hydraulic fluid **Total time
engine was operated** 33.5 hours.

ENGINE: Make John Deere Diesel **Type** six cyl-
inder vertical with turbocharger **Serial No.**
CD6359T681989 **Crankshaft** lengthwise **Rated
rpm** 2200 **Bore and stroke** 4.19" × 4.33" (106.5
mm × 110 mm) **Compression ratio** 17.8 to 1 **Dis-
placement** 359 cu in (5883 ml) **Starting system** 12
volt **Lubrication** pressure **Air cleaner** two paper
elements **Oil filter** one full flow paper cartridge
Oil cooler engine coolant heat exchanger for
crankcase oil, radiator for hydraulic and trans-
mission oil **Fuel filter** one paper cartridge **Muffler**
vertical **Cooling medium temperature control** two
thermostats and variable speed fan.

CHASSIS: **Type** standard with duals **Serial No.**
RW4050H006554 **Tread width** rear 60" (1524
mm) to 128.7" (3269 mm) front 58" (1473 mm) to
82" (2083 mm) **Wheel base** 106.7" (2710 mm) **Center
of gravity** (without operator or ballast, with min-
imum tread, with fuel tank filled and tractor serv-
iced for operation) Horizontal distance forward
from center-line of rear wheels 30.4" (772 mm)
Vertical distance above roadway 45.0" (1143 mm)
Horizontal distance from center of rear wheel tread
0.4" (10 mm) to the left **Hydraulic control system**
direct engine drive **Transmission** selective gear
fixed ratio with partial (2) range operator con-
trolled powershift **Advertised speeds mph (km/h)**
first 2.1 (3.4) second 2.7 (4.3) third 3.4 (5.5) fourth
4.4 (7.0) fifth 4.8 (7.7) sixth 5.7 (9.1) seventh 6.1
(9.8) eighth 7.2 (11.6) ninth 7.9 (12.7) tenth 8.7
(14.0) eleventh 9.4 (15.1) twelfth 10.1 (16.2) thir-
teenth 11.1 (17.8) fourteenth 11.9 (19.2) fifteenth
14.4 (23.2), sixteenth 18.3 (29.4) reverse 3.3 (5.4),
4.2 (6.8), 7.7 (12.3), 9.1 (14.6), 9.7 (15.7), 11.5
(18.6) **Clutch** multiple wet disc hydraulically power
actuated by foot pedal **Brakes** wet disc hydraul-
ically power actuated by two foot pedals which can
be locked together **Steering** hydrostatic **Turning
radius** (on concrete surface with brake applied)
right 146" (3.7 m) left 146" (3.7 m) (on concrete
surface without brake) right 157" (4.0 m) left 157"

LUGGING ABILITY IN 7th (B2) GEAR

Crankshaft Speed rpm	2201	1981	1751	1537	1328	1091
Pull—lbs (kN)	6167 (27.43)	6942 (30.88)	7820 (34.79)	8197 (36.46)	7923 (35.24)	7255 (32.27)
Increase in Pull %	0	13	27	33	28	18
Power—Hp (kW)	96.35 (71.85)	96.63 (72.06)	95.16 (70.96)	87.12 (64.96)	73.01 (54.44)	55.26 (41.21)
Speed—Mph (km/h)	5.86 (9.43)	5.22 (8.40)	4.56 (7.34)	3.99 (6.41)	3.46 (5.56)	2.86 (4.60)
Slip %	4.92	5.84	6.89	7.33	7.03	6.44

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	73.0
75% of Pull at Maximum Power—Ten Hours	73.5
50% of Pull at Maximum Power—Two Hours	74.5
50% of Pull at Reduced Engine Speed—Two Hours	71.0
Bystander in 16th (D4) gear	86.5

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	Four 18.4-38; 6; 12 (85)	Four 18.4-38; 6; 12 (85)
Ballast	577 lb (262 kg)	None
	None	None
Front Tires	Two 11.00-16; 8; 40 (275)	Two 11.00-16; 8; 40 (275)
Ballast	None	None
	63 lb (29 kg)	None
Height of Drawbar	23 in (585 mm)	23 in (585 mm)
Static Weight with Operator—Rear	10020 lb (4545 kg)	8865 lb (4021 kg)
—Front	3650 lb (1656 kg)	3525 lb (1599 kg)
—Total	13670 lb (6201 kg)	12390 lb (5620 kg)

(4.0 m) **Turning space diameter** (on concrete surface with brake applied) right 302" (7.67 m) left 302" (7.67 m)(on concrete surface without brake) right 338" (8.58 m) left 338" (8.58 m) **Power take-off** 540 rpm at 2201 engine rpm and 1003 rpm at 2201 engine rpm **Unladen tractor mass** 11105 lb (5037 kg).

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 150°F (65.7°C). Nine gears were chosen between 15% slip and 10 mph (16.1 km/h). The performance figures on this report apply to chassis serial numbers RW4050H006510 and higher.

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. 1590, May 6, 1986.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

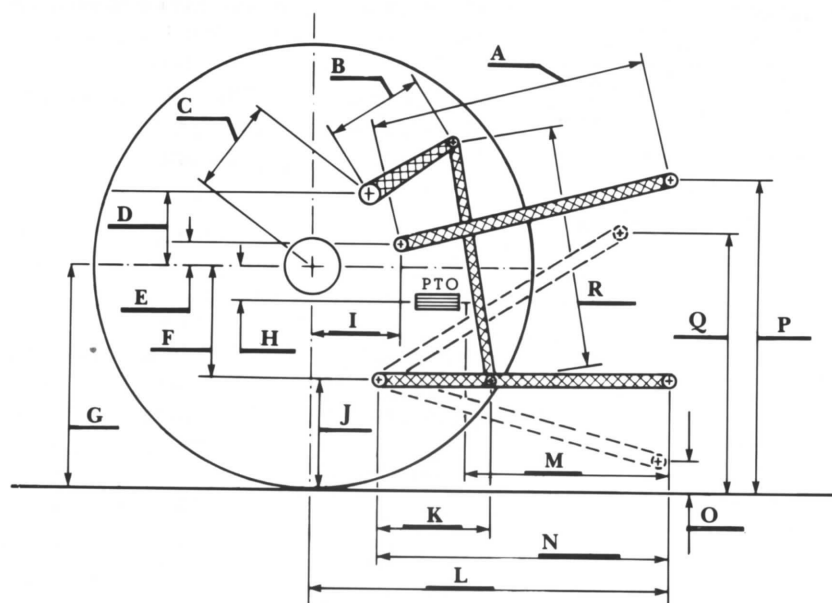
Board of Tractor Test Engineers

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2300 (15860)		
Location	pressure control valve		
Hydraulic oil temperature °F (°C)	148 (64)		
Location	pump inlet		
	Maximum Lift Capacity	Lift Capacity for Transport	Maximum Lift Capacity with optional boost cylinder
QUICK ATTACH	no	no	no
CATEGORY	2	2	2
Load lbs (kg)	**5965 (2706)	4450 (2018)	***7230 (3279)
TIME sec.	8.05	1.94	5.69
HITCH POINT MOVEMENT in (mm)			
Lowest position	11.8 (300)	8.0 (203)	11.9 (302)
Top of timed range	35.8 (909)	32.3 (820)	35.9 (912)
Highest position	36.4 (925)	32.3 (820)	36.5 (927)
LOAD CG MOVEMENT in (mm)			
Lowest position	9.8 (249)	5.8 (147)	9.8 (249)
Top of timed range	38.7 (983)	34.2 (869)	38.8 (986)
Highest position	39.8 (1011)	34.2 (869)	39.6 (1006)

**The manufacturer's claimed capacity was 6294 lbs (2855 kg).

***The manufacturer's claimed capacity was 7418 lbs (3365 kg).



Hitch Dimensions as Tested — No Load

	inch	mm
A	28.1	714
B	11.5	292
*C	11.3	287
D	10.9	278
E	5.5	140
F	10.2	259
G	31.5	799
H	5.5	140
I	13.5	343
J	21.3	540
K	23.1	587
L	41.2	1046
M	21.5	547
N	36.7	932
O	8.0	203
P	40.3	1022
Q	35.3	895
R	33.0	838

* rockshaft is ahead of rear axle.



John Deere 4050 Quadrange Diesel