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Test 1591: John Deere 4050 Powershift Diesel 15-Speed (Chassis S/N RW4050P006510 and Higher)

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1591—JOHN DEERE 4050 POWERSHIFT DIESEL 15 SPEED

CHASSIS SERIAL NUMBERS RW4050P006510 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)								
105.69 (78.81)	2200	6.074 (22.992)	0.403 (0.245)	17.40 (3.428)	205 (96.2)	70 (20.9)	75 (23.9)	28.63 (96.68)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
92.13 (68.70)	2257	5.535 (20.953)	0.421 (0.256)	16.64 (3.279)	198 (92.2)	70 (20.8)	75 (23.9)	..... .....
0.00 (0.00)	2367	1.969 (7.454)	..... .....	..... .....	179 (81.7)	69 (20.6)	75 (23.6)	..... .....
47.30 (35.27)	2316	3.664 (13.871)	0.543 (0.330)	12.91 (2.543)	182 (83.3)	69 (20.6)	75 (23.6)	..... .....
106.36 (79.31)	2201	6.032 (22.832)	0.397 (0.242)	17.63 (3.474)	198 (92.2)	70 (21.1)	75 (23.9)	..... .....
23.90 (17.82)	2342	2.872 (10.873)	0.842 (0.512)	8.32 (1.639)	180 (82.2)	71 (21.4)	75 (23.9)	..... .....
70.38 (52.48)	2289	4.598 (17.404)	0.458 (0.278)	15.31 (3.015)	186 (85.3)	71 (21.7)	76 (24.2)	..... .....
Av Av	56.68 (42.26)	2295	4.112 (15.565)	0.508 (0.309)	13.78 (2.715)	187 (86.2)	70 (21.0)	75 (23.8)	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)	Cool- ing med	Air wet bulb	Air dry bulb	
Maximum Available Power — Two Hours 10th Gear											
88.28 (65.83)	5195 (23.11)	6.37 (10.26)	2200	4.09	6.043 (22.876)	0.480 (0.292)	14.61 (2.878)	198 (92.2)	53 (11.7)	70 (21.1)	28.84 (97.39)
75% of Pull at Maximum Power — Ten Hours 10th Gear											
70.09 (52.27)	3946 (17.55)	6.66 (10.72)	2271	2.90	5.204 (19.699)	0.520 (0.317)	13.47 (2.653)	188 (86.8)	56 (13.5)	67 (19.6)	28.68 (96.85)
50% of Pull at Maximum Power — Two Hours 10th Gear											
47.83 (35.67)	2631 (11.70)	6.82 (10.97)	2307	2.13	4.352 (16.475)	0.638 (0.388)	10.99 (2.165)	182 (83.1)	33 (0.3)	36 (1.9)	29.03 (98.03)
50% of Pull at Reduced Engine Speed — Two Hours 13th Gear											
47.75 (35.61)	2632 (11.71)	6.80 (10.95)	1407	2.17	3.289 (12.451)	0.483 (0.294)	14.52 (2.860)	181 (82.5)	38 (3.1)	41 (5.0)	29.05 (98.10)
MAXIMUM POWER IN SELECTED GEARS											
79.21 (59.06)	11378 (50.61)	2.61 (4.20)	2233	14.61	4th Gear			184 (84.2)	40 (4.4)	45 (7.2)	29.05 (98.10)
85.79 (63.97)	10342 (46.00)	3.11 (5.01)	2201	10.45	5th Gear			185 (85.0)	41 (5.0)	47 (8.3)	29.04 (98.06)
89.47 (66.72)	9423 (41.92)	3.56 (5.73)	2199	9.62	6th Gear			195 (90.6)	51 (10.6)	68 (20.0)	28.91 (97.62)
89.17 (66.49)	7968 (35.44)	4.20 (6.75)	2198	7.34	7th Gear			197 (91.4)	51 (10.6)	68 (20.0)	28.91 (97.62)
87.27 (65.07)	6843 (30.44)	4.78 (7.70)	2202	6.00	8th Gear			193 (89.4)	51 (10.6)	68 (20.0)	28.90 (97.59)
87.81 (65.48)	5921 (26.34)	5.56 (8.95)	2198	4.94	9th Gear			196 (90.8)	52 (11.1)	68 (20.0)	28.89 (97.56)
89.42 (66.68)	5261 (23.40)	6.37 (10.26)	2203	4.16	10th Gear			197 (91.4)	52 (11.1)	68 (20.0)	28.87 (97.49)
88.98 (66.35)	4523 (20.12)	7.38 (11.87)	2200	3.69	11th Gear			198 (91.9)	52 (11.1)	68 (20.0)	28.89 (97.56)
91.64 (68.34)	4040 (17.97)	8.51 (13.69)	2199	3.06	12th Gear			196 (91.1)	52 (11.1)	68 (20.0)	28.88 (97.52)

Department of Agricultural Engineering

Dates of Test: April 1 to 16, 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** 4.022 gal (15.224
l) **Drained from motor** 3.845 gal (14.554 l) **Trans-
mission and final drive lubricant** John Deere Hy-
Gard transmission and hydraulic fluid **Total time
engine was operated** 38.5 hours.

ENGINE: Make John Deere Diesel **Type** six cyl-
inder vertical with turbocharger **Serial No.**
CD6359T681988 **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.**
RW4050P006572 **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 30.7" (780 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 full range operator controlled
powershift **Advertised speeds mph (km/h)** first 1.4
(2.2) second 2.0 (3.2) third 2.3 (3.7) fourth 3.0 (4.8)
fifth 3.4 (5.5) sixth 3.9 (6.3) seventh 4.5 (7.2) eighth
5.0 (8.1) ninth 5.8 (9.3) tenth 6.6 (10.6) eleventh
7.6 (12.2) twelfth 8.7 (14.0) thirteenth 10.8 (17.3)
fourteenth 14.7 (23.7) fifteenth 18.2 (29.3) reverse
1.7 (2.7), 2.4 (3.9), 3.6 (5.9), 5.5 (8.8) **Clutch** wet
multiple disc hydraulically power actuated by foot
pedal **Brakes** wet disc hydraulically power ac-
tuated 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 with-
out brake) right 157" (4.0 m) left 157" (4.0 m) **Turn-
ing space diameter** (on concrete surface with brake
applied) right 302" (7.67 m) left 302" (7.67 m) (on

LUGGING ABILITY IN 10th GEAR

Crankshaft Speed rpm	2203	1976	1761	1549	1314	1103
Pull—lbs (kN)	5261 (23.40)	6131 (27.27)	6609 (29.40)	6949 (30.91)	7019 (31.22)	6612 (29.41)
Increase in Pull %	0	17	26	32	33	26
Power—Hp (kW)	89.42 (66.68)	92.65 (69.09)	88.53 (66.02)	81.48 (60.76)	69.76 (52.02)	55.38 (41.30)
Speed—Mph (km/h)	6.37 (10.26)	5.67 (9.12)	5.02 (8.08)	4.40 (7.08)	3.73 (6.00)	3.14 (5.06)
Slip %	4.16	5.09	5.40	6.00	6.15	5.70

TRACTOR SOUND LEVEL WITH CAB	dB(A)
Maximum Available Power—Two Hours	74.5
75% of Pull at Maximum Power—Ten Hours	74.5
50% of Pull at Maximum Power—Two Hours	75.0
50% of Pull at Reduced Engine Speed—Two Hours	72.5
Bystander in 15th gear	88.0

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	—No., size, ply & psi (kPa) —Liquid (each inner) —Cast Iron (each)	None None None
Front Tires	Two 11.00-16; 8; 40 (275)	Two 11.00-16; 8; 40 (275)
Ballast	—No., size, ply & psi (kPa) —Liquid (each) —Cast Iron (each)	None None None
Height of Drawbar	23 in (585 mm)	23 in (585 mm)
Static Weight with Operator —Rear	9950 lb (4513 kg)	9085 lb (4121 kg)
—Front	3735 lb (1694 kg)	3600 lb (1633 kg)
—Total	13685 lb (6207 kg)	12685 lb (5754 kg)

concrete surface without brake) right 338 " (8.58 m) left 338" (8.58 m) **Power take-off** 540 rpm at 2201 and 1003 rpm at 2200 engine rpm **Unladen tractor mass** 11400 lb (5171 kg).

REPAIRS AND ADJUSTMENTS: Following the PTO test, the fuel shut off control cable was replaced.

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 152°F (66.8°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 RW4050P006510 and higher.

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. 1591, May 6, 1986.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

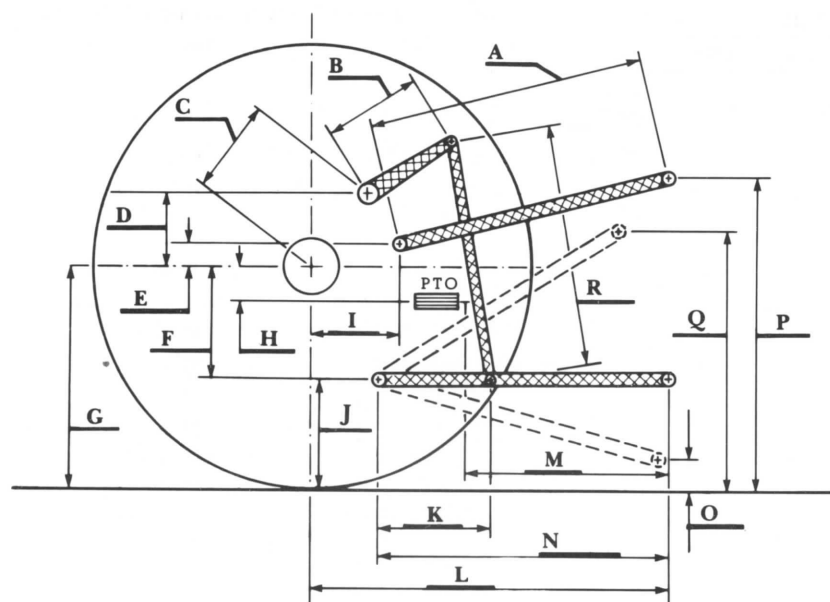
Board of Tractor Test Engineers

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2350 (16200)				
Location	pressure control valve				
Hydraulic oil temperature °F (°C)	145 (63)				
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)	**6048 (2743)	4452 (2019)		***7220 (3275)	
TIME sec.	7.67	2.06		8.55	
HITCH POINT MOVEMENT in (mm)					
Lowest position	11.3 (287)	8.0 (203)		11.3 (287)	
Top of timed range	35.3 (897)	32.7 (831)		35.3 (897)	
Highest position	36.4 (925)	32.7 (831)		36.2 (919)	
LOAD CG MOVEMENT in (mm)					
Lowest position	10.0 (254)	6.5 (165)		9.9 (251)	
Top of timed range	38.6 (980)	35.2 (894)		38.8 (986)	
Highest position	40.2 (1021)	35.2 (894)		40.2 (1021)	

**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	27.4	695
B	11.5	292
*C	11.3	287
D	10.9	278
E	5.5	140
F	10.2	259
G	31.7	805
H	5.5	140
I	13.5	343
J	21.5	546
K	23.1	587
L	41.2	1046
M	21.5	547
N	36.7	932
O	8.0	203
P	40.5	1029
Q	35.0	889
R	33.0	838

* rockshaft is ahead of rear axle.



John Deere 4050 Powershift Diesel