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2008

## Test 1943: John Deere 9430T Diesel

Nebraska Tractor Test Lab

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

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# NEBRASKA OECD TRACTOR TEST 1943—SUMMARY 619

## JOHN DEERE 9430T DIESEL

### 18 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—1108 rpm)</b>					
320.78 (239.20)	2100	19.86 (75.18)	0.432 (0.263)	16.15 (3.18)	
<b>Standard Power Take-off Speed—(PTO speed—1000 rpm)</b>					
365.51 (272.56)	1895	21.71 (82.20)	0.414 (0.252)	16.83 (3.32)	
<b>Maximum Power (1 hour)</b>					
367.82 (274.28)	1849	21.85 (82.70)	0.414 (0.252)	16.84 (3.32)	

#### VARYING POWER AND FUEL CONSUMPTION

320.78 (239.20)	2100	19.86 (75.18)	0.432 (0.263)	16.15 (3.18)	Air temperature
275.77 (205.64)	2124	17.96 (67.98)	0.454 (0.276)	15.36 (3.02)	78°F (26°C)
208.12 (155.19)	2138	15.22 (57.62)	0.510 (0.310)	13.67 (2.69)	Relative humidity
139.73 (104.20)	2153	12.10 (45.79)	0.604 (0.367)	11.55 (2.28)	29%
70.36 (52.46)	2168	8.88 (33.61)	0.880 (0.536)	7.93 (1.56)	Barometer
1.75 (1.31)	2183	6.61 (25.04)	26.300 (15.998)	0.27 (0.05)	28.78" Hg (97.46 kPa)

Maximum Torque - 1197 lb.-ft. (1623 Nm) at 1349 rpm  
Maximum Torque Rise - 49.2%  
Torque rise at 1700 engine rpm - 39%  
Power increase at 1850 engine rpm - 14.6%

#### DRAWBAR PERFORMANCE (Unballasted)

##### 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 cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—7th Gear</b>									
328.03 (244.61)	28320 (125.97)	4.34 (6.99)	2097	2.1	0.464 (0.282)	15.03 (2.96)	188 (87)	67 (19)	28.98 (98.14)
<b>75% of Pull at Maximum Power—7th Gear</b>									
255.79 (190.74)	21156 (94.11)	4.53 (7.30)	2167	1.2	0.509 (0.310)	13.71 (2.70)	183 (84)	73 (23)	28.84 (97.66)
<b>50% of Pull at Maximum Power—7th Gear</b>									
174.23 (129.92)	14187 (63.10)	4.61 (7.41)	2189	0.5	0.583 (0.355)	11.96 (2.36)	180 (82)	74 (23)	28.81 (97.56)
<b>75% of Pull at Reduced Engine Speed—10th Gear</b>									
255.83 (190.77)	21133 (94.00)	4.54 (7.31)	1586	1.2	0.479 (0.291)	14.57 (2.87)	203 (95)	73 (23)	28.83 (97.63)
<b>50% of Pull at Reduced Engine Speed—10th Gear</b>									
174.04 (129.78)	14147 (62.93)	4.61 (7.42)	1603	0.5	0.540 (0.329)	12.92 (2.54)	186 (86)	75 (24)	28.81 (97.56)

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

**Dates of tests:** October 1- 14, 2008

**Manufacturer:** John Deere Tractor Works, 3500 East Donald St. , P.O. Box 270, Waterloo Ia, 50704-0270

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.8380 Fuel weight 6.977 lbs/gal (0.836 kg/l) Oil SAE 15W-40 API service classification CJ-4 Transmission and hydraulic lubricant John Deere Hy-Gard fluid Total time engine was operated: 31.5 hours

**ENGINE:** Make John Deere Diesel Type six cylinder vertical with turbocharger and air to air aftercooler Serial No. \*RG6135L003255\* Crankshaft lengthwise Rated engine speed 2100 Bore and stroke 5.197" x 6.496" (132.0 mm x 165.0 mm) Compression ratio 16.0 to 1 Displacement 826 cu in (13548 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements and aspirator Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, separate radiators for hydraulic and transmission oil, radiator for rear axle oil Fuel filter two paper cartridges Fuel cooler radiator for returned fuel Muffler vertical Cooling medium temperature control 3 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: (375 engine hp) 130.5 - 141.1 lb/h (59.2 - 64.0 kg/h), (400 engine hp) 137.3 - 148.5 lb/h (62.3 - 67.4 kg/h), (425 engine hp) 144.0 - 155.6 lb/h (65.3 - 70.6 kg/h) High idle: 2215 - 2265 rpm (2160 - 2200 rpm with PTO engaged) Turbo boost: (425 engine hp) nominal 23.2 - 26.1 psi (160 - 180 kPa) as measured 25.0 psi (172 kPa)

**CHASSIS:** Type track layer-rubber tracked Serial No. \*RW9430T902228\* Track width 107.4" (2728 mm) Length of track on ground 111.0" (2819 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with full range operator controlled power shift Nominal travel speeds mph (km/h) first 2.14 (3.44) second 2.64 (4.25) third 2.92 (4.70) fourth 3.26 (5.25) fifth 3.59 (5.78) sixth 4.01 (6.45) seventh 4.44 (7.15) eighth 4.96 (7.98) ninth 5.46 (8.79) tenth 6.10 (9.82) eleventh 6.76 (10.88) twelfth 7.47 (12.02) thirteenth 8.32 (13.39) fourteenth 9.19 (14.79) fifteenth 11.37 (18.29) sixteenth 13.98 (22.50) seventeenth 17.28 (27.81) eighteenth 21.27 (34.23) reverse 2.14 (3.44), 2.92 (4.70), 3.26 (5.25), 4.44 (7.15), 4.96 (7.98), 6.76 (10.88)

## DRAWBAR PERFORMANCE

(Unballasted at 2100 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	Barom. inch Hg (kPa)
1st Gear							
244.67 (182.45)	45296 (201.49)	2.03 (3.26)	2154	8.9	0.528 (0.321)	13.23 (2.61)	28.92 (97.93)
2nd Gear							
274.32 (204.56)	41370 (184.02)	2.49 (4.00)	2098	6.2	0.496 (0.302)	14.06 (2.77)	28.92 (97.93)
3rd Gear							
281.19 (209.69)	37852 (168.37)	2.79 (4.48)	2100	5.4	0.484 (0.295)	14.41 (2.84)	28.90 (97.87)
4th Gear							
301.82 (225.07)	36144 (160.77)	3.13 (5.04)	2099	4.4	0.478 (0.291)	14.59 (2.87)	28.89 (97.83)
5th Gear							
326.16 (243.22)	35246 (156.78)	3.47 (5.58)	2096	3.3	0.468 (0.285)	14.91 (2.94)	28.81 (97.56)
6th Gear							
327.76 (244.41)	31308 (139.26)	3.93 (6.32)	2100	2.4	0.466 (0.284)	14.97 (2.95)	28.81 (97.56)
7th Gear							
328.03 (244.61)	28320 (125.97)	4.34 (6.99)	2097	2.1	0.464 (0.282)	15.03 (2.96)	28.98 (98.14)
8th Gear							
327.06 (243.89)	25222 (112.19)	4.86 (7.83)	2102	1.7	0.463 (0.282)	15.07 (2.97)	28.97 (98.10)
9th Gear							
324.97 (242.33)	22462 (99.91)	5.43 (8.73)	2100	1.2	0.467 (0.284)	14.94 (2.94)	28.97 (98.10)
10th Gear							
323.86 (241.50)	20210 (89.90)	6.01 (9.67)	2096	1.0	0.471 (0.287)	14.81 (2.92)	28.96 (98.07)
11th Gear							
323.47 (241.21)	18218 (81.04)	6.66 (10.72)	2099	0.8	0.471 (0.286)	14.83 (2.92)	28.89 (97.83)
12th Gear							
327.41 (244.15)	16583 (73.76)	7.40 (11.92)	2099	0.6	0.466 (0.283)	14.98 (2.95)	28.88 (97.80)
13th Gear							
315.80 (235.49)	14386 (63.99)	8.23 (13.25)	2099	0.4	0.482 (0.293)	14.49 (2.85)	28.86 (97.73)

**Clutch** wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically actuated foot pedal **Steering** electro-hydraulic differential steering controlled by steering wheel **Power take-off** 1000 rpm at 1895 engine rpm **Unladen tractor mass** 44205 lb (20051 kg)

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

**NOTE:** The 9430T engine has an electronic control system which provides a vehicle protection system to avoid overloading the drive train. This system provides three different engine power levels. At 2100 rpm the engine produces up to 375 hp when the transmission is in forward gears 1 through 3 and when used for stationary PTO applications. At 2100 rpm the engine produces 400 hp when the transmission is in gear 4. At 2100 rpm the engine produces 425 hp in all other applications.

**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 primary fuel filter was maintained at 104°F (40°C). The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1943**, Nebraska Summary 619, January 12, 2009.

Roger M. Hoy  
Director

M.F. Kocher  
V.I. Adamchuk  
J.A. Smith  
Board of Tractor Test Engineers

### TRACTOR SOUND LEVEL WITH CAB

	dB(A)
At no load in 7th gear	72.4
Transport speed-no load- 18th gear	77.7
Bystander in 18th gear	91.1

### TRACKS AND WEIGHT

Track width	30.0 in (762 mm)
Height of Drawbar	19.5 in (495 mm)
Static Weight with operator-	44380 lb(20130 kg)

### Tested Without Ballast

**DRAWBAR PERFORMANCE**  
**(Unballasted 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)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
245.76 (183.26)	45384 (201.88)	2.03 (3.27)	2154	9.4	1st Gear 0.527 (0.321)	13.24 (2.61)	179 (82)	52 (11)	28.92 (97.93)
280.06 (208.84)	44478 (197.85)	2.36 (3.80)	2043	8.9	2nd Gear 0.502 (0.305)	13.90 (2.74)	180 (82)	58 (14)	28.91 (97.90)
298.08 (222.28)	43250 (192.39)	2.58 (4.16)	1994	8.1	3rd Gear 0.482 (0.293)	14.47 (2.85)	180 (82)	55 (13)	28.81 (97.56)
318.66 (237.63)	42117 (187.35)	2.84 (4.57)	1980	8.5	4th Gear 0.482 (0.293)	14.48 (2.85)	188 (87)	65 (18)	28.89 (97.83)
348.92 (260.19)	41329 (183.84)	3.17 (5.10)	1973	6.4	5th Gear 0.468 (0.284)	14.92 (2.94)	183 (84)	61 (16)	28.81 (97.56)
362.37 (270.22)	39382 (175.18)	3.45 (5.55)	1902	5.1	6th Gear 0.460 (0.280)	15.18 (2.99)	189 (87)	64 (18)	28.82 (97.60)
368.06 (274.46)	35869 (159.55)	3.85 (6.19)	1899	4.5	7th Gear 0.453 (0.275)	15.42 (3.04)	195 (90)	68 (20)	28.98 (98.13)
373.72 (278.68)	32319 (143.76)	4.34 (6.98)	1901	3.1	8th Gear 0.447 (0.272)	15.62 (3.08)	196 (91)	66 (19)	28.98 (98.13)
373.40 (278.45)	28832 (128.25)	4.86 (7.82)	1901	2.1	9th Gear 0.445 (0.271)	15.68 (3.09)	194 (90)	62 (17)	28.97 (98.10)
371.94 (277.35)	25720 (114.41)	5.42 (8.73)	1900	1.5	10th Gear 0.448 (0.273)	15.57 (3.07)	191 (88)	59 (15)	28.96 (98.07)
375.82 (280.25)	23530 (104.67)	5.99 (9.64)	1897	1.3	11th Gear 0.445 (0.271)	15.68 (3.09)	201 (94)	67 (19)	28.89 (97.83)
378.85 (282.51)	21204 (94.32)	6.70 (10.78)	1900	1.1	12th Gear 0.442 (0.269)	15.80 (3.11)	202 (94)	71 (22)	28.87 (97.77)
365.10 (272.25)	18537 (82.45)	7.39 (11.89)	1895	1.0	13th Gear 0.456 (0.277)	15.30 (3.01)	205 (96)	72 (22)	28.86 (97.73)
369.35 (275.42)	16910 (75.22)	8.19 (13.18)	1888	0.8	14th Gear 0.452 (0.275)	15.44 (3.04)	202 (94)	73 (23)	28.85 (97.70)

**Lugging ability in 11th gear**

Crankshaft speed rpm	2099	2007	1897	1800	1701	1600	1304	1084
Pull-lbs (kN)	18218 (81.04)	20694 (92.05)	23530 (104.67)	24347 (108.30)	25812 (114.82)	26430 (117.57)	27072 (120.42)	26722 (118.87)
Increase in pull%	0	14	29	34	42	45	49	47
Power-Hp (kW)	323.47 (241.21)	349.64 (260.73)	375.82 (280.25)	368.35 (274.68)	368.07 (274.47)	354.34 (264.23)	296.09 (220.79)	242.27 (180.66)
Speed-mpH (km/h)	6.66 (10.72)	6.34 (10.20)	5.99 (9.64)	5.67 (9.13)	5.35 (8.61)	5.03 (8.09)	4.10 (6.60)	3.40 (5.47)
Slip %	0.8	1.1	1.3	1.4	1.7	1.8	1.9	1.8

## HYDRAULIC PERFORMANCE

CATEGORY: IV

Quick Attach: yes

OECD Static test

Maximum force exerted through whole range: 16070 lbs (71.5 kN)

i) Sustained pressure at compensator cutoff: 2984 psi (206 bar)

**Single outlet set      Three outlet sets combined**

ii) Pump delivery rate at minimum pressure and rated engine speed: 40.6 GPM (153.7 l/min) 51.7 GPM (195.8 l/min)

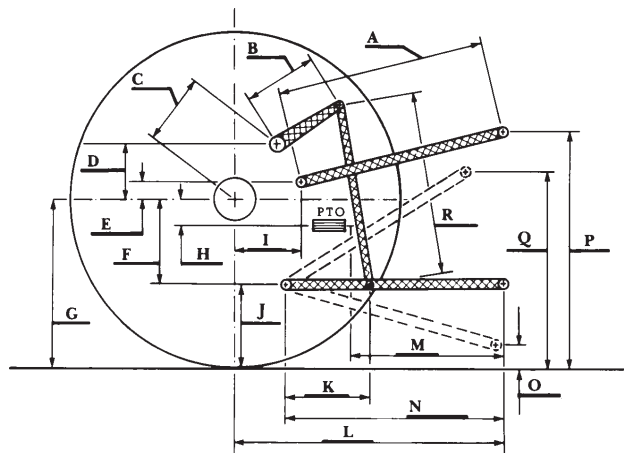
iii) Pump delivery rate at maximum

hydraulic power: 37.8 GPM (143.2 l/min) 50.5 GPM (191.0 l/min)

Delivery pressure: 2094 psi (144 bar) 2544 psi (175 bar)

Power: 46.2 HP (34.5 kW) 74.9 HP (55.8 kW)

## HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	29.7	755
B	18.5	471
C	31.9	810
D	30.4	772
E	11.3	288
F	13.8	350
G	34.1	865
H	NA	NA
I	23.1	586
J	20.3	515
K	27.8	707
L	61.3	1558
*L'	68.6	1743
M	NA	NA
N	50.0	1270
O	9.0	230
P	47.3	1201
Q	41.3	1050
R	48.1	1223

\*L' to Quick Attach ends



**JOHN DEERE 9430T DIESEL**