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Test 1475: John Deere 4250 Quadrange Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1475

JOHN DEERE 4250 QUADRANGE DIESEL

16 SPEED

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—1002 rpm) | | | | | | | | |
| 120.21 (89.64) | 2200 | 7.656 (28.981) | 0.446 (0.272) | 15.70 (3.093) | 188 (86.9) | 59 (15.2) | 74 (23.4) | 28.953 (97.771) |
| VARYING POWER AND FUEL CONSUMPTION—Two Hours | | | | | | | | |
| 104.15 (77.66) | 2243 | 7.030 (26.611) | 0.473 (0.288) | 14.81 (2.918) | 185 (85.0) | 66 (19.2) | 75 (23.9) | |
| 0.00 (0.00) | 2340 | 2.513 (9.513) | | | 172 (78.1) | 66 (18.6) | 74 (23.1) | |
| 53.32 (39.76) | 2296 | 4.680 (17.716) | 0.615 (0.374) | 11.39 (2.244) | 182 (83.3) | 66 (18.6) | 73 (22.8) | |
| 121.14 (90.33) | 2201 | 7.724 (29.239) | 0.447 (0.272) | 15.68 (3.089) | 188 (86.7) | 67 (19.4) | 76 (24.4) | |
| 26.89 (20.05) | 2316 | 3.669 (13.889) | 0.956 (0.582) | 7.33 (1.444) | 177 (80.6) | 67 (19.4) | 74 (23.6) | |
| 79.18 (59.04) | 2274 | 5.891 (22.300) | 0.521 (0.317) | 13.44 (2.648) | 184 (84.4) | 66 (18.9) | 74 (23.1) | |
| Av 64.11 Av (47.81) | 2278 | 5.251 (19.877) | 0.574 (0.349) | 12.21 (2.405) | 181 (83.0) | 66 (19.1) | 74 (23.5) | 28.970 (97.827) |

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 7th (B2) Gear | | | | | | | | | | | |
| 106.38 (79.33) | 6977 (31.03) | 5.72 (9.20) | 2200 | 4.89 | 7.653 (28.970) | 0.504 (0.307) | 13.90 (2.738) | 190 (87.5) | 42 (5.3) | 52 (9.7) | 29.010 (97.962) |
| 75% of Pull at Maximum Power—Ten Hours 7th (B2) Gear | | | | | | | | | | | |
| 85.37 (63.66) | 5354 (23.82) | 5.98 (9.62) | 2268 | 3.73 | 6.661 (25.215) | 0.547 (0.333) | 12.82 (2.525) | 186 (85.3) | 36 (2.1) | 40 (4.3) | 28.957 (97.783) |
| 50% of Pull at Maximum Power—Two Hours 7th (B2) Gear | | | | | | | | | | | |
| 57.90 (43.18) | 3525 (15.68) | 6.16 (9.91) | 2306 | 2.37 | 5.441 (20.596) | 0.658 (0.400) | 10.64 (2.096) | 183 (83.9) | 36 (2.2) | 41 (5.0) | 29.000 (97.929) |
| 50% of Pull at Reduced Engine Speed—Two Hours 12th (B4) Gear | | | | | | | | | | | |
| 57.91 (43.18) | 3525 (15.68) | 6.16 (9.92) | 1397 | 2.33 | 4.103 (15.532) | 0.496 (0.302) | 14.11 (2.780) | 181 (82.8) | 37 (2.8) | 41 (5.0) | 28.995 (97.912) |
| MAXIMUM POWER IN SELECTED GEARS | | | | | | | | | | | |
| 78.41 (58.47) | 12858 (57.19) | 2.29 (3.68) | 2256 | 14.83 | 2nd (A2) Gear | | | 183 (83.9) | 35 (1.7) | 39 (3.9) | 29.030 (98.030) |
| 99.11 (73.91) | 12621 (56.14) | 2.94 (4.74) | 2201 | 13.60 | 3rd (A3) Gear | | | 187 (85.8) | 36 (2.2) | 40 (4.4) | 29.040 (98.064) |
| 106.83 (79.66) | 10073 (44.80) | 3.98 (6.40) | 2200 | 8.10 | 4th (A4) Gear | | | 189 (86.9) | 38 (3.3) | 42 (5.6) | 29.050 (98.097) |
| 106.47 (79.39) | 9032 (40.18) | 4.42 (7.11) | 2203 | 6.88 | 5th (B1) Gear | | | 190 (87.5) | 39 (3.9) | 44 (6.7) | 29.050 (98.097) |
| 107.27 (79.99) | 7574 (33.69) | 5.31 (8.55) | 2200 | 5.41 | 6th (C1) Gear | | | 190 (87.5) | 40 (4.4) | 47 (8.3) | 29.050 (98.097) |
| 108.77 (81.11) | 7139 (31.76) | 5.71 (9.20) | 2200 | 5.11 | 7th (B2) Gear | | | 189 (87.2) | 40 (4.4) | 45 (7.2) | 29.050 (98.097) |
| 108.29 (80.75) | 5937 (26.41) | 6.84 (11.01) | 2201 | 4.20 | 8th (C2) Gear | | | 190 (87.5) | 40 (4.4) | 47 (8.3) | 29.050 (98.097) |
| 106.78 (79.62) | 5310 (23.62) | 7.54 (12.14) | 2199 | 3.59 | 9th (B3) Gear | | | 190 (87.5) | 40 (4.4) | 48 (8.9) | 29.040 (98.064) |
| 105.13 (78.40) | 4724 (21.01) | 8.35 (13.43) | 2199 | 3.20 | 10th (D1) Gear | | | 190 (87.5) | 40 (4.4) | 48 (8.9) | 29.040 (98.064) |

Department of Agricultural Engineering

Dates of Test: March 31 to April 12, 1983

Manufacturer: JOHN DEERE TRACTOR WORKS, P.O. Box 270, Waterloo, Iowa 50702

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8416 **Fuel weight** 7.007 lbs/gal (0.840 kg/l) **Oil SAE 15W-40 API service classification** CD, CC, SD **To motor** 3.977 gal (15.056 l) **Drained from motor** 3.739 gal (14.152 l) **Transmission and final drive lubricant** John Deere Hy-Gard transmission and hydraulic fluid **Total time engine was operated** 42.5 hours.

ENGINE: Make John Deere Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *RG6466T242624* **Crankshaft** lengthwise **Rated rpm** 2000 to 2200 **Bore and stroke** 4.57" x 4.75" (116.0 mm x 120.6 mm) **Compression ratio** 15.8 to 1 **Displacement** 466 cu in (7636 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 transmission oil **Fuel filter** two paper elements with prestrainer **Muffler** vertical **Cooling medium temperature control** two thermostats and variable speed fan.

CHASSIS: **Type** standard with duals **Serial No.** *RW4250H002243* **Tread width** rear 60" (1524 mm) to 114" (2890 mm) front 56" (1420 mm) to 82.6" (2099 mm) **Wheel base** 106.7" (2710 mm) **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 29.5" (749 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 controlled powershift **Advertised speeds mph (km/h)** first 2.1 (3.4) second 2.6 (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) thirteenth 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** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** wet disc hydraulically power actuated and operated 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" (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 1002 rpm at 2200 engine rpm.

LUGGING ABILITY IN 7th (B2) GEAR

| | | | | | | |
|----------------------|-------------------|-------------------|-------------------|------------------|------------------|------------------|
| Crankshaft Speed rpm | 2200 | 1981 | 1766 | 1543 | 1327 | 1104 |
| Pull—lbs (kN) | 7139 (31.76) | 8148 (36.24) | 9059 (40.30) | 9548 (42.47) | 9282 (41.29) | 9090 (40.43) |
| Increase in Pull % | 0 | 14 | 27 | 34 | 30 | 27 |
| Power—Hp (kW) | 108.77 (81.11) | 110.51 (82.41) | 108.76 (81.10) | 98.85 (73.71) | 83.42 (62.21) | 68.09 (50.78) |
| Speed—Mph (km/h) | 5.71 (9.20) | 5.09 (8.19) | 4.50 (7.25) | 3.88 (6.25) | 3.37 (5.42) | 2.81 (4.52) |
| Slip % | 5.11 | 6.01 | 6.74 | 7.89 | 7.03 | 7.03 |

| TRACTOR SOUND LEVEL WITH CAB | 2000 RPM dB(A) | 2200 RPM dB(A) |
|---|-------------------|-------------------|
| Maximum Available Power—Two Hours | 74.0 | 74.0 |
| 75% of Pull at Maximum Power—Ten Hours | | 73.5 |
| 50% of Pull at Maximum Power—Two Hours | | 74.0 |
| 50% of Pull at Reduced Engine Speed—Two Hours | | 72.0 |
| Bystander in 16th (D4) gear | | 87.0 |

SUPPLEMENTARY TESTS POWER AND FUEL CONSUMPTION AT 2000 RPM 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—One Hour (PTO Speed—912 rpm) | | | | | | | | |
| 123.06 (91.77) | 2001 | 7.448 (28.194) | 0.424 (0.258) | 16.52 (3.255) | 188 (86.7) | 66 (18.9) | 75 (24.1) | 28.955 (97.777) |

DRAWBAR PERFORMANCE AT 2000 RPM

| 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 7th (B2) Gear | | | | | | | | | | | |
| 110.04 (82.05) | 8006 (35.61) | 5.15 (8.29) | 1999 | 5.79 | 7.546 (28.565) | 0.481 (0.292) | 14.58 (2.873) | 191 (88.1) | 42 (5.3) | 51 (10.3) | 28.960 (97.794) |

MAXIMUM POWER IN SELECTED GEAR

| | | | | | | | | | | | |
|-------------------|-----------------|----------------|------|------|--|--|---------------|---------------|-------------|-------------|--------------------|
| 110.90 (82.70) | 8082 (35.95) | 5.15 (8.28) | 1999 | 5.86 | | | 7th (B2) Gear | 191 (88.1) | 40 (4.4) | 46 (7.8) | 29.050 (98.097) |
|-------------------|-----------------|----------------|------|------|--|--|---------------|---------------|-------------|-------------|--------------------|

TIRES, BALLAST AND WEIGHT

| Rear Tires | | With Ballast | | Without Ballast | |
|----------------------------------|--|---|--|---|--|
| Ballast | —No., size, ply & psi (kPa) —Liquid (each inner) —Cast Iron (each) | Four 18.4-38; 6; 12 (85) 737 lb (335 kg) None | | Four 18.4-38; 6; 12 (85) None None | |
| Front Tires | —No., size, ply & psi (kPa) —Liquid (each) —Cast Iron (each) | Two 11.00-16; 8; 36 (250) None 73 lb (33 kg) | | Two 11.00-16; 8; 36 (250) None None | |
| Height of Drawbar | | 24 in (610 mm) | | 24 in (610 mm) | |
| Static Weight with Operator—Rear | | 11145 lb (5055 kg) | | 9670 lb (4386 kg) | |
| —Front | | 3845 lb (1744 kg) | | 3700 lb (1678 kg) | |
| —Total | | 14990 lb (6799 kg) | | 13370 lb (6064 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 or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 119°F (48.5°C). Nine gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1475.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



John Deere 4250 Quadrange Diesel