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January 2002

Nebraska Summary 392: John Deere 7320 Diesel 24-Speed

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SUMMARY OF OECD TEST 2038—NEBRASKA SUMMARY 392

JOHN DEERE 7320 DIESEL

24 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-1042 rpm) | | | | | |
| 109.8 (81.9) | 2300 | 6.67 (25.24) | 0.421 (0.256) | 16.47 (3.24) | |
| Standard Power Take-off Speed (1000 rpm) | | | | | |
| 115.3 (86.0) | 2208 | 6.68 (25.29) | 0.403 (0.245) | 17.25 (3.40) | |
| Maximum Power (2 hours) | | | | | |
| 117.1 (87.3) | 2001 | 6.51 (24.64) | 0.386 (0.235) | 17.97 (3.54) | |

VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|-----------------|------|-----------------|------------------|-----------------|---------------------|
| 109.8 (81.9) | 2300 | 6.67 (25.24) | 0.421 (0.255) | 16.45 (3.24) | Air temperature |
| 95.7 (71.4) | 2371 | 6.04 (22.85) | 0.438 (0.266) | 15.86 (3.12) | 79°F (26°C) |
| 72.4 (54.0) | 2393 | 5.07 (19.21) | 0.487 (0.296) | 14.26 (2.81) | Relative humidity |
| 48.7 (36.3) | 2418 | 4.10 (15.53) | 0.585 (0.356) | 11.88 (2.34) | 40% |
| 24.7 (18.4) | 2440 | 3.21 (12.15) | 0.905 (0.550) | 7.67 (1.51) | Barometer |
| -- | 2463 | 2.19 (8.30) | -- | -- | 29.4" Hg (99.7 kPa) |

Maximum Torque - 353 lb.-ft. (479 Nm) at 1501 rpm
Maximum Torque Rise - 40.9%
Torque rise at 1800 engine rpm - 32%

DRAWBAR PERFORMANCE (Unballasted—Front Drive Engaged) FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank- shaft speed rpm | Slip % | Fuel lb/hp.hr (kg/kW.h) | Consumption Hp.hr/gal (kW.h/l) | Temp. °F (°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|---|--------------------------------|------------------------|---------------------------------|-----------|-------------------------------|--------------------------------------|--------------------------------------|--------------------|-------------------------------|
| Maximum Power—10th (C2) Gear | | | | | | | | | |
| 93.3 (69.6) | 7710 (34.30) | 4.54 (7.31) | 2299 | 4.5 | 0.497 (0.302) | 14.08 (2.77) | 183 (84) | 81 (27) | 29.5 (99.8) |
| 75% of Pull at Maximum Power—10th (C2) Gear | | | | | | | | | |
| 73.6 (54.9) | 5785 (25.73) | 4.77 (7.68) | 2382 | 3.2 | 0.546 (0.332) | 12.80 (2.52) | 180 (82) | 81 (27) | 29.5 (99.8) |
| 50% of Pull at Maximum Power—10th (C2) Gear | | | | | | | | | |
| 50.2 (37.4) | 3865 (17.19) | 4.87 (7.84) | 2407 | 2.2 | 0.638 (0.388) | 10.96 (2.16) | 176 (80) | 81 (27) | 29.5 (99.8) |
| 75% of Pull at Reduced Engine Speed—11th (C3) Gear | | | | | | | | | |
| 73.1 (54.5) | 5785 (25.74) | 4.74 (7.62) | 1977 | 3.5 | 0.483 (0.294) | 14.47 (2.85) | 181 (83) | 81 (27) | 29.5 (99.8) |
| 50% of Pull at Reduced Engine Speed—11th (C3) Gear | | | | | | | | | |
| 50.0 (37.3) | 3860 (17.18) | 4.85 (7.81) | 2002 | 2.3 | 0.547 (0.333) | 12.79 (2.52) | 174 (79) | 81 (27) | 29.5 (99.8) |

Location of Test: DLG Testing Station for
Agricultural Machinery Max - Eyth - Weg 1,
D-64823 Gros-Umstadt, Germany

Dates of Test: May - July, 2002

Manufacturer: Deere & Company, Moline,
Illinois, USA

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.834
Fuel weight 6.94 lbs/gal (0.832 kg/l) **Oil SAE**
15W-40 **API service classification** CF-4
Transmission and hydraulic lubricant John
Deere Hy-Gard fluid **Front axle lubricant** SAE
80W90.

ENGINE: Make John Deere Diesel **Type** six
cylinder vertical with turbocharger and intercooler
Serial No. 665003 **Crankshaft** lengthwise **Rated engine speed** 2300 **Bore and stroke** 4.19" x 5.00" (106.5 mm x 127.0 mm) **Compression ratio** 16.9 to 1 **Displacement** 414 cu in (6788 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 element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** front wheel assist **Serial No.** 321768 **Tread width** rear 71.5" (1815 mm) front 71.9" (1827 mm) **Wheel base** 104.3" (2650 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (4) range operator controlled powershift **Nominal travel speeds mph (km/h)** first 0.99 (1.59) second 1.19 (1.91) third 1.42 (2.29) fourth 1.74 (2.80) fifth 2.40 (3.87) sixth 2.90 (4.66) seventh 3.47 (5.58) eighth 3.92 (6.31) ninth 4.25 (6.84) tenth 4.72 (7.60) eleventh 5.65 (9.10) twelfth 6.44 (10.36) thirteenth 6.93 (11.15) fourteenth 7.75 (12.48) fifteenth 9.28 (14.94) sixteenth 10.46 (16.84) seventeenth 11.37 (18.30) eighteenth 12.60 (20.27) nineteenth 14.12 (22.73) twentieth 15.08 (24.27) twenty-first 17.01 (27.37) twenty-second 18.47 (29.73) twenty-third 20.37 (32.78) twenty-fourth 24.94 (40.15) reverse 1.03 (1.66), 1.24 (1.99), 1.49 (2.39), 1.82 (2.93), 2.51 (4.04), 3.03 (4.87), 3.62 (5.83), 4.09 (6.59), 4.44 (7.14), 4.93 (7.94), 5.90 (9.50), 6.72 (10.82), 7.23 (11.64), 8.09 (13.02), 9.69 (15.60), 10.92 (17.58), 11.87 (19.10), 13.15 (21.17), 14.75 (23.73), 15.75 (25.35), 17.75 (28.57), 19.28 (31.03), 21.25 (34.20), 26.02 (41.88) **Clutch** multiple wet disc hydraulically operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2143 engine rpm or 1000 rpm at 2208 engine rpm. **Unladen tractor mass** 13005 lb (5900 kg)

DRAWBAR PERFORMANCE
(Unballasted–Front Drive Engaged)
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) | Consumption Hp.hr/gal (kW.h/l) | Temp.°F(°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|---|--------------------------------------|------------------------------------|--------------------|-------------------------------|
| 90.7 (67.6) | 13130 (58.40) | 2.59 (4.17) | 2006 | 15.0 | 7th (B3) Gear 0.501 (0.305) | 13.96 (2.75) | 183 (84) | 81 (27) | 29.5 (99.8) |
| 94.5 (70.5) | 11530 (51.28) | 3.07 (4.95) | 1997 | 10.4 | 8th (C1) Gear 0.483 (0.294) | 14.49 (2.86) | 185 (85) | 81 (27) | 29.5 (99.8) |
| 97.1 (72.4) | 10520 (46.80) | 3.46 (5.57) | 1995 | 6.9 | 9th (B4) Gear 0.470 (0.286) | 14.87 (2.93) | 180 (82) | 81 (27) | 29.5 (99.8) |
| 98.9 (73.8) | 9510 (42.31) | 3.90 (6.28) | 2001 | 6.0 | 10th (C2) Gear 0.461 (0.281) | 15.15 (2.99) | 183 (84) | 77 (25) | 29.4 (99.5) |
| 99.1 (73.9) | 7845 (34.90) | 4.74 (7.63) | 2000 | 4.3 | 11th (C3) Gear 0.458 (0.279) | 15.27 (3.01) | 181 (83) | 70 (21) | 29.4 (99.5) |
| 98.9 (73.8) | 6835 (30.41) | 5.43 (8.73) | 2002 | 3.7 | 12th (D1) Gear 0.461 (0.280) | 15.18 (2.99) | 183 (84) | 75 (24) | 29.4 (99.5) |
| 98.2 (73.2) | 6270 (27.89) | 5.87 (9.45) | 2003 | 3.3 | 13th (C4) Gear 0.461 (0.280) | 15.18 (2.99) | 180 (82) | 73 (23) | 29.4 (99.5) |
| 98.6 (73.5) | 5615 (24.98) | 6.58 (10.59) | 1999 | 3.0 | 14th (D2) Gear 0.462 (0.281) | 15.13 (2.98) | 183 (84) | 79 (26) | 29.4 (99.5) |
| 97.6 (72.8) | 4645 (20.66) | 7.88 (12.69) | 1992 | 2.6 | 15th (D3) Gear 0.467 (0.284) | 14.97 (2.95) | 183 (84) | 75 (24) | 29.4 (99.5) |
| 95.5 (71.2) | 4005 (17.82) | 8.94 (14.38) | 1995 | 2.4 | 16th (E1) Gear 0.478 (0.291) | 14.64 (2.89) | 183 (84) | 77 (25) | 29.4 (99.5) |
| 95.3 (71.1) | 3670 (16.33) | 9.74 (15.67) | 1996 | 2.0 | 17th (D4) Gear 0.476 (0.290) | 14.70 (2.90) | 183 (84) | 79 (26) | 29.4 (99.5) |

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

NOTE: The PTO, Drawbar and sound level data presented here are the results of tests conducted on the John Deere 6620 Autoquad Diesel.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. The performance results on this summary were taken from OECD tests conducted under the Code II Test Code procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2038**, Nebraska Summary 392, July 1, 2003.

Leonard L. Bashford
Director

M. F. Kocher
V.I. Adamchuk
W.P. Campbell
Board of Tractor Test Engineers

TIRES AND WEIGHT

Rear Tires–No., size, ply & psi (kPa)
Front Tires–No., size, ply & psi (kPa)
Height of Drawbar
Static Weight with operator–Rear
– Front
– Total

Tested Without Ballast

Two 650/65R38; **, 12 (80)
Two 540/65R28; **, 12 (80)
21.5 in (545 mm)
7825 lb (3550 kg)
5345 lb (2425 kg)
13170 lb (5975 kg)

| TRACTOR SOUND LEVEL WITH CAB | Front Wheel Drive | |
|-------------------------------------|-------------------|---------------------|
| | Engaged dB(A) | Disengaged dB(A) |
| At no load in 10th(C2) Gear | 70.0 | 69.0 |
| Maximum Sound level in 5th(B1) gear | 71.0 | 71.5 |
| Bystander | -- | -- |

The following results are from the tests conducted on the John Deere 7220 PowrQuad Diesel

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

lift cylinders

Maximum Force Exerted Through Whole Range: 5606 lbs (24.9 kN) (2x 75 mm)

CATEGORY: IIIN

Quick Attach: None

Maximum Force Exerted Through Whole Range: 8855 lbs (39.4 kN) (2x 90 mm)

Sustained pressure at compensator cutoff: 2935 psi (202 bar)

ii) Pump delivery rate at minimum pressure
and rated engine speed:

1 outlet set

30.1 GPM(113.9 l/min)

2 outlet sets combined

30.3 GPM(114.7 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

28.1 GPM(106.4 l/min)

28.4 GPM(107.5 l/min)

Delivery pressure:

2403 psi(166 bar)

2707 psi (187 bar)

Power:

39.4 Hp(29.4 kW)

44.9 HP (33.4 kW)

THREE POINT HITCH PERFORMANCE-SAE TEST

Observed Maximum Pressure psi.(bar)

2935 (202)

Location:

lift cylinders

Hydraulic oil temperature: °F(°C)

140(60)

Location:

hydraulic sump

Category:

II, IIIN

Quick attach:

No

HITCH DIMENSIONS AS TESTED—NO LOAD Category II

| | SAE TEST | | OECD TEST | |
|---|----------|------|-----------|------|
| | inch | mm | inch | mm |
| A | 24.2 | 615 | 25.5 | 648 |
| B | 12.0 | 305 | 12.0 | 305 |
| C | 19.9 | 505 | 19.9 | 505 |
| D | 18.7 | 475 | 18.7 | 475 |
| E | 7.1 | 180 | 7.1 | 180 |
| F | 8.8 | 224 | 8.8 | 224 |
| G | 32.3 | 820 | 32.3 | 820 |
| H | 2.0 | 50 | 2.0 | 50 |
| I | 17.8 | 452 | 17.8 | 452 |
| J | 23.5 | 596 | 23.5 | 596 |
| K | 19.8 | 503 | 19.8 | 503 |
| L | 42.5 | 1080 | 42.5 | 1080 |
| M | 21.7 | 550 | 21.7 | 550 |
| N | 37.2 | 945 | 37.2 | 945 |
| O | 8.0 | 203 | 8.0 | 203 |
| P | 42.4 | 1078 | 47.5 | 1206 |
| Q | 33.4 | 848 | 33.4 | 848 |
| R | 31.3 | 795 | 31.3 | 795 |

Category II—75 mm cylinders - System pressure 2545 psi (175 Bar)

| | | | | | |
|---|-----------|------------|------------|------------|------------|
| Hitch point distance to ground level in. (mm) | 8.1 (206) | 15.0 (381) | 22.0 (559) | 29.0 (737) | 36.0 (914) |
| Lift force on frame lb | 7290 | 7902 | 8060 | 7808 | 6939 |
| " " " " " " (kN) | (32.4) | (35.1) | (35.9) | (34.7) | (30.9) |

Category IIIN—90 mm cylinders - System pressure 2545 psi (175 Bar)

| | | | | | |
|---|-----------|------------|------------|------------|------------|
| Hitch point distance to ground level in. (mm) | 8.1 (206) | 16.0 (406) | 24.0 (610) | 32.1 (815) | 38.0 (965) |
| Lift force on frame lb | 13312 | 12990 | 13045 | 12635 | 11571 |
| " " " " " " (kN) | (59.2) | (57.8) | (58.0) | (56.2) | (51.5) |

