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Nebraska Summary 442: Fendt 716 Vario Diesel

Nebraska Tractor Test Lab

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SUMMARY OF OECD TEST 2136—NEBRASKA SUMMARY 442

FENDT 716 VARIO DIESEL

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-1103 rpm) | | | | | |
| 141.5 (105.5) | 2100 | 8.84 (33.47) | 0.433 (0.264) | 15.99 (3.15) | |
| Standard Power Take-off Speed (1000 rpm) | | | | | |
| 153.0 (114.1) | 1903 | 8.88 (33.61) | 0.402 (0.245) | 17.24 (3.40) | |
| Maximum Power (2 hours) | | | | | |
| 153.0 (114.1) | 1903 | 8.88 (33.61) | 0.402 (0.245) | 17.24 (3.40) | |

VARYING POWER AND FUEL CONSUMPTION

| | | | | | |
|---|------|-----------------|------------------|-----------------|----------------------|
| 141.5 (105.5) | 2100 | 8.84 (33.47) | 0.434 (0.264) | 15.99 (3.15) | Air temperature |
| 121.9 (90.9) | 2123 | 7.81 (29.56) | 0.443 (0.270) | 15.63 (3.08) | 66°F (19°C) |
| 92.2 (68.7) | 2144 | 6.29 (23.80) | 0.473 (0.288) | 14.66 (2.89) | Relative humidity |
| 62.1 (46.3) | 2167 | 4.63 (17.51) | 0.517 (0.314) | 13.41 (2.64) | 24% |
| 31.2 (23.3) | 2186 | 3.20 (12.11) | 0.710 (0.432) | 9.76 (1.92) | Barometer |
| -- | 2204 | 1.86 (7.03) | -- | -- | 29.6" Hg (100.4 kPa) |
| Maximum Torque - 509 lb.-ft. (690 Nm) at 1404 rpm | | | | | |
| Maximum Torque Rise - 43.7% | | | | | |
| Torque rise at 1700 engine rpm - 31% | | | | | |

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 Consumption lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Temp. °F cool- ing med | °C Air dry bulb | Barom. inch Hg (kPa) |
|--|--------------------------------|------------------------|---------------------------------|-----------|---|-----------------------|---------------------------------|--------------------------|-------------------------------|
| Maximum Power—Low Range | | | | | | | | | |
| 125.4 (93.5) | 10000 (44.48) | 4.70 (7.57) | 2101 | 4.1 | 0.503 (0.306) | 13.76 (2.71) | 190 (88) | 37 (3) | 29.6 (100.3) |
| 75% of Pull at Maximum Power—Low Range | | | | | | | | | |
| 97.0 (72.3) | 7490 (33.31) | 4.86 (7.82) | 2134 | 2.8 | 0.533 (0.324) | 12.99 (2.56) | 189 (87) | 39 (4) | 29.6 (100.3) |
| 50% of Pull at Maximum Power—Low Range | | | | | | | | | |
| 66.3 (49.4) | 4980 (22.16) | 4.99 (8.03) | 2157 | 1.7 | 0.593 (0.361) | 11.67 (2.30) | 183 (84) | 37 (3) | 29.6 (100.3) |
| 75% of Pull at Reduced Engine Speed—Low Range | | | | | | | | | |
| 97.0 (72.3) | 7490 (33.32) | 4.85 (7.81) | 1563 | 2.7 | 0.446 (0.271) | 15.53 (3.06) | 189 (87) | 37 (3) | 29.6 (100.3) |
| 50% of Pull at Reduced Engine Speed—Low Range | | | | | | | | | |
| 66.2 (49.4) | 4980 (22.16) | 4.99 (8.03) | 1580 | 1.6 | 0.480 (0.292) | 14.42 (2.84) | 183 (84) | 39 (4) | 29.6 (100.3) |

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

Dates of Test: December 2003 to February 2004

Manufacturer: AGCO GmbH & Co. D-87616 Marktoberdorf, Germany

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.832 **Fuel weight** 6.93 lbs/gal (0.8305 kg/l) **Oil SAE** 10W40 **API service classification** CD **Transmission lubricant** SAE 10W30 **Hydraulic lubricant** SAE 10W40 **Front axle lubricant** 85W/90 gear oil, API GL-5

ENGINE: Make Deutz Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** 00000861279 **Crankshaft** lengthwise **Rated engine speed** 2100 **Bore and stroke** 3.858" x 4.961" (98.0 mm x 126.0 mm) **Compression ratio** 18.0 to 1 **Displacement** 348 cu in (5702 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, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Fuel cooler** radiator for pump return fuel **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** front wheel assist **Serial No.** 716/22/0100 **Tread width** rear 60.0" (1524 mm) to 121.4" (3084 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) **Wheel base** 106.3" (2700 mm) **Hydraulic control system** direct engine drive **Transmission** Fendt Vario. A combination of mechanical and hydrostatic sections allow an infinite speed adjustment within the ranges noted. The transmission has two mechanical ranges. **Nominal travel speeds mph (km/h)** forward: Low range 0-20 (0-32), high range 0-31 (0-50) reverse: Low range 0-12 (0-20), high range 0-25 (0-40) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1931 engine rpm or 1000 rpm at 1903 engine rpm. **Unladen tractor mass** 14815 lb (6720 kg)

DRAWBAR PERFORMANCE
(Unballasted-Front Drive Engaged)
MAXIMUM POWER AT SELECTED TRAVEL SPEEDS

| 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) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|---|--------------------------------------|-------------------------------------|--------------------|-------------------------------|
| 110.9 (82.7) | 15635 (69.55) | 2.66 (4.28) | 2117 | 14.9 | Low Range 0.544 (0.331) | 12.72 (2.51) | 190 (88) | 37 (3) | 29.6 (100.4) |
| 118.3 (88.2) | 14960 (66.54) | 2.97 (4.77) | 1943 | 14.9 | Low Range 0.524 (0.319) | 13.20 (2.60) | 190 (88) | 37 (3) | 29.6 (100.3) |
| 129.5 (96.6) | 11740 (52.22) | 4.14 (6.66) | 1901 | 5.8 | Low Range 0.479 (0.292) | 14.44 (2.85) | 192 (89) | 34 (1) | 29.6 (100.3) |
| 130.2 (97.1) | 9465 (42.10) | 5.16 (8.30) | 1901 | 3.9 | Low Range 0.477 (0.290) | 14.52 (2.86) | 192 (89) | 36 (2) | 29.6 (100.4) |
| 130.3 (97.2) | 8285 (36.85) | 5.90 (9.50) | 1901 | 3.2 | Low Range 0.476 (0.289) | 14.54 (2.86) | 192 (89) | 34 (1) | 29.6 (100.4) |
| 128.9 (96.1) | 6935 (30.84) | 6.97 (11.22) | 1902 | 2.4 | Low Range 0.482 (0.293) | 14.37 (2.83) | 190 (88) | 32 (0) | 29.6 (100.4) |
| 127.7 (95.2) | 6020 (26.78) | 7.95 (12.79) | 1902 | 2.2 | Low Range 0.487 (0.296) | 14.21 (2.80) | 192 (89) | 32 (0) | 29.6 (100.4) |
| 125.7 (93.7) | 5255 (23.37) | 8.97 (14.43) | 1903 | 1.8 | Low Range 0.495 (0.301) | 14.01 (2.76) | 192 (89) | 32 (0) | 29.6 (100.4) |
| 125.8 (93.8) | 9500 (42.26) | 4.97 (7.99) | 1900 | 3.9 | High Range 0.493 (0.300) | 14.03 (2.76) | 194 (90) | 32 (0) | 29.6 (100.4) |
| 128.1 (95.5) | 8475 (37.71) | 5.67 (9.12) | 1901 | 3.3 | High Range 0.485 (0.295) | 14.26 (2.81) | 194 (90) | 34 (1) | 29.6 (100.4) |
| 130.4 (97.2) | 7170 (31.89) | 6.82 (10.97) | 1902 | 2.7 | High Range 0.478 (0.291) | 14.49 (2.86) | 192 (89) | 32 (0) | 29.6 (100.4) |
| 130.3 (97.2) | 6120 (27.22) | 7.99 (12.86) | 1903 | 2.3 | High Range 0.477 (0.290) | 14.52 (2.86) | 192 (89) | 32 (0) | 29.6 (100.4) |
| 129.3 (96.4) | 5290 (23.54) | 9.16 (14.74) | 1906 | 2.0 | High Range 0.481 (0.292) | 14.39 (2.83) | 192 (89) | 32 (0) | 29.6 (100.4) |

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

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. **2136**, Nebraska Summary 442, September 17, 2004.

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)
17.7 in (450 mm)
9250 lb (4195 kg)
5730 lb (2600 kg)
14980 lb (6795 kg)

| TRACTOR SOUND LEVEL WITH CAB | Front Wheel Drive | |
|---|-------------------|---------------------|
| | Engaged dB(A) | Disengaged dB(A) |
| Maximum Sound level | 77.0 | 74.5 |
| Sound level at 4.6 mph (7.5 km/h) - no load | 69.5 | 70.0 |
| Bystander | -- | -- |

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: Walterscheid lower links

Maximum force exerted through whole range: 12035 lbs (53.5 kN)

i) Opening pressure of relief valve: NA

Sustained pressure of the open relief valve: one outlet set 2945 psi (203 bar) two outlet sets combined 2945 psi (203 bar)

ii) Pump delivery rate at minimum pressure: 21.1 GPM (79.7 l/min) 29.6 GPM (112.0 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 21.5 GPM (81.5 l/min) 25.6 GPM (97.0 l/min)

Delivery pressure: 2615 psi (180 bar) 2755 psi (190 bar)

Power: 32.8 HP (24.5 kW) 41.1 Hp (30.7 kW)

Observed Maximum Pressure psi. (bar) 2705 (186)
Location: lift cylinder
Hydraulic oil temperature: °F (°C) 148 (64)
Location: hydraulic sump
Category: III
Quick attach: No

SAE Static Test—System pressure 2385 psi (164 Bar)

Hitch point distance to ground level in. (mm) 8.2(208) 14.4(366) 20.8(528) 27.2(690) 33.8(858) 40.0(1016)
Lift force on frame lb 13761 12600 12618 13086 13104 12384
" " " " " " (kN) (61.2) (56.0) (56.1) (58.2) (58.3) (55.1)

HITCH DIMENSIONS AS TESTED - NO LOAD

| | SAE test | | OECD test | |
|---|----------|------|-----------|------|
| | inch | mm | inch | mm |
| A | 29.5 | 749 | 29.3 | 745 |
| B | 13.4 | 340 | 13.4 | 340 |
| C | 14.0 | 355 | 14.0 | 355 |
| D | 12.4 | 315 | 12.4 | 315 |
| E | 14.0 | 355 | 9.4 | 240 |
| F | 10.0 | 255 | 10.0 | 255 |
| G | 33.6 | 855 | 33.6 | 855 |
| H | 2.2 | 55 | 2.2 | 55 |
| I | 15.0 | 380 | 16.1 | 410 |
| J | 23.6 | 600 | 23.6 | 600 |
| K | 26.2 | 665 | 26.2 | 665 |
| L | 45.1 | 1145 | 45.1 | 1145 |
| M | 25.0 | 635 | 25.0 | 635 |
| N | 39.4 | 1000 | 39.4 | 1000 |
| O | 8.0 | 203 | 9.1 | 230 |
| P | 45.6 | 1158 | 50.6 | 1285 |
| Q | 37.1 | 943 | 38.0 | 965 |
| R | 29.5 | 749 | 29.1 | 740 |

