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January 2002

## Nebraska Summary 411: Fendt 411 Vario

Nebraska Tractor Test Lab

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# SUMMARY OF OECD TEST 2070—NEBRASKA SUMMARY 411

## FENDT 411 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
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed - (PTO Speed -1084 rpm)</b>					
96.0 (71.6)	2100	5.76 (21.82)	0.419 (0.255)	16.65 (3.28)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
106.2 (79.2)	1937	6.03 (22.83)	0.396 (0.241)	17.61 (3.47)	
<b>Maximum Power (2 hours)</b>					
107.7 (80.3)	1851	5.95 (22.52)	0.385 (0.234)	18.12 (3.57)	

### VARYING POWER AND FUEL CONSUMPTION

96.0 (71.6)	2100	5.76 (21.82)	0.419 (0.255)	16.65 (3.28)	Air temperature
83.1 (62.0)	2140	5.15 (19.51)	0.433 (0.263)	16.09 (3.17)	77°F (25°C)
63.3 (47.2)	2168	4.23 (16.02)	0.465 (0.283)	14.97 (2.95)	Relative humidity
42.6 (31.8)	2195	3.28 (12.41)	0.535 (0.326)	12.97 (2.56)	35%
21.6 (16.1)	2220	2.31 (8.76)	0.745 (0.453)	9.35 (1.84)	Barometer
--	2251	1.47 (5.56)	--	--	29.4" Hg (99.6 kPa)

Maximum Torque - 367 lb.-ft. (497 Nm) at 1201 rpm  
Maximum Torque Rise - 52.4%  
Torque rise at 1700 engine rpm - 35%

### 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 (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—Low Range</b>									
81.16 (60.52)	6530 (29.05)	4.66 (7.50)	2099	3.3	0.505 (0.307)	13.80 (2.72)	192 (89)	49 (9)	29.4 (99.5)
<b>75% of Pull at Maximum Power—Low Range</b>									
62.42 (46.55)	4840 (21.52)	4.84 (7.79)	2145	2.6	0.546 (0.332)	12.77 (2.51)	189 (87)	53 (12)	29.4 (99.5)
<b>50% of Pull at Maximum Power—Low Range</b>									
43.21 (32.22)	3255 (14.48)	4.98 (8.01)	2176	1.8	0.620 (0.377)	11.24 (2.21)	185 (85)	53 (12)	29.4 (99.5)
<b>75% of Pull at Reduced Engine Speed—Low Range</b>									
63.12 (47.07)	4855 (21.59)	4.88 (7.85)	1761	2.5	0.484 (0.295)	14.41 (2.84)	187 (86)	55 (13)	29.4 (99.5)
<b>50% of Pull at Reduced Engine Speed—Low Range</b>									
42.74 (31.87)	3210 (14.27)	4.99 (8.04)	1775	1.8	0.540 (0.329)	12.89 (2.54)	185 (85)	55 (13)	29.4 (99.5)

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

**Dates of Test:** September - October, 2002

**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)** 0.837 **Fuel weight** 6.97 lbs/gal (0.835 kg/l) **Oil SAE** 10W40 **API service classification** CD **Transmission lubricant** SAE 10W/30 **Hydraulic lubricant** SAE 10W/40 **Front axle lubricant** 85W/90 gear oil, API GL-5

**ENGINE: Make** Deutz Diesel **Type** Four cylinder vertical with turbocharger and air to air intercooler **Serial No.** 00699210 **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** 232 cu in (3802 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.** 411/22/3151 **Tread width** rear 70.5" (1790 mm) front 72.0" (1830 mm) **Wheel base** 95.2" (2417 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 0-15 (0-22), high range 0-31 (0-50) reverse: Low range 0-11 (0-17), 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 1932 engine rpm or 1000 rpm at 1937 engine rpm. **Unladen tractor mass** 12180 lb (5525 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)	Hp.hr/gal (kW.h/l)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
76.22 (56.84)	13375 (59.49)	2.14 (3.44)	2043	15.1	Low Range 0.560 (0.341)	12.44 (2.45)	192 (89)	50 (10)	29.7 (100.5)
85.88 (64.04)	12960 (57.64)	2.49 (4.00)	1847	10.8	Low Range 0.499 (0.304)	13.96 (2.75)	192 (89)	50 (10)	29.7 (100.5)
88.09 (65.69)	10540 (46.88)	3.14 (5.05)	1846	6.4	Low Range 0.473 (0.288)	14.76 (2.91)	196 (91)	54 (12)	29.7 (100.5)
89.08 (66.43)	9110 (40.53)	3.67 (5.90)	1845	5.1	Low Range 0.472 (0.287)	14.77 (2.91)	196 (91)	54 (12)	29.7 (100.5)
89.58 (66.80)	7810 (34.74)	4.30 (6.92)	1853	4.2	Low Range 0.472 (0.287)	14.77 (2.91)	196 (91)	61 (16)	29.7 (100.5)
89.71 (66.90)	6790 (30.20)	4.96 (7.98)	1846	3.8	Low Range 0.469 (0.286)	14.86 (2.93)	196 (91)	63 (17)	29.7 (100.5)
87.73 (65.42)	5670 (25.22)	5.80 (9.34)	1841	3.1	Low Range 0.481 (0.292)	14.52 (2.86)	196 (91)	64 (18)	29.7 (100.5)
86.64 (64.61)	4720 (20.99)	6.88 (11.08)	1851	2.6	Low Range 0.486 (0.295)	14.37 (2.83)	196 (91)	63 (17)	29.7 (100.5)
84.54 (63.04)	3890 (17.31)	8.15 (13.11)	1852	2.3	Low Range 0.503 (0.306)	13.85 (2.73)	196 (91)	54 (12)	29.7 (100.5)
81.02 (60.42)	7950 (35.37)	3.82 (6.15)	1849	4.0	High Range 0.527 (0.321)	13.24 (2.61)	196 (91)	54 (12)	29.7 (100.5)
86.24 (64.31)	6920 (30.79)	4.67 (7.52)	1847	3.6	High Range 0.494 (0.300)	14.13 (2.78)	196 (91)	54 (12)	29.7 (100.5)
88.61 (66.08)	5690 (25.31)	5.84 (9.40)	1850	2.9	High Range 0.481 (0.292)	14.52 (2.86)	196 (91)	54 (12)	29.7 (100.5)
88.70 (66.14)	4795 (21.34)	6.93 (11.16)	1849	2.6	High Range 0.480 (0.291)	14.53 (2.86)	196 (91)	59 (15)	29.7 (100.5)
87.60 (65.32)	4140 (18.41)	7.94 (12.77)	1852	2.2	High Range 0.486 (0.295)	14.37 (2.83)	196 (91)	61 (16)	29.7 (100.5)

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

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's 3 point lift claim of 8800 lbs (3993 kg) at 24". The performance results on this summary were taken from OECD tests conducted under the Code II Test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2070**, Nebraska Summary 411, September 2, 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 600/65R38; \*\*, 12 (80)  
Two 540/65R24; \*\*, 12 (80)  
17.7 in (450 mm)  
7595 lb (3445 kg)  
4750 lb (2155 kg)  
12345 lb (5600 kg)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
Sound level at 4.6 mph (7.5 km/h) - no load	70.5	68.0
Maximum Sound level	75.0	74.5
Bystander	--	--

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

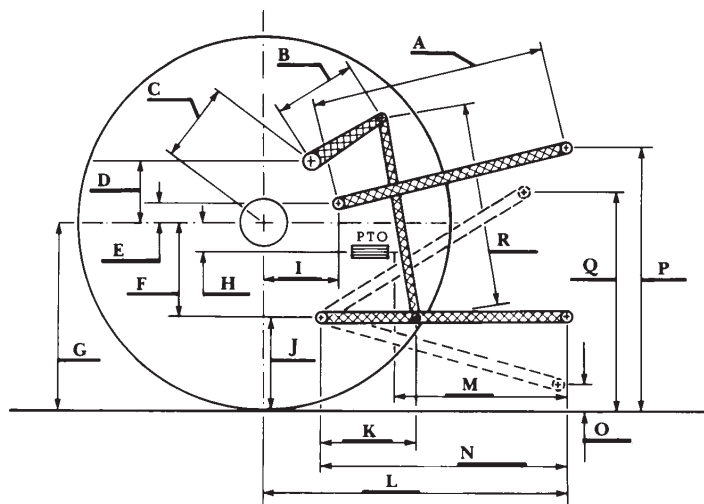
CATEGORY: III

Quick Attach: Walterscheid lower links

Maximum Force Exerted Through Whole Range: 8500 lbs (37.8 kN)

- i) Opening pressure of relief valve: NA
- Sustained pressure of the open relief valve: 3030 psi (209 bar)
- ii) Pump delivery rate at minimum pressure: 21.7 GPM (82.1 l/min)
- iii) Pump delivery rate at maximum
  - hydraulic power: 19.4 GPM (73.3 l/min)
  - Delivery pressure: 2685 psi (185 bar)
  - Power: 30.4 HP (22.6 kW)

### HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	29.5	750
B	13.4	340
C	13.9	354
D	11.9	303
E	9.4	240
F	8.3	210
G	32.3	820
H	1.2	30
I	14.4	366
J	24.0	610
K	25.0	636
L	43.5	1105
M	23.4	595
N	38.2	970
O	7.9	200
P	48.0	1220
Q	37.2	945
R	28.0	710