January 2003

Nebraska Summary 412: Fendt 412 Vario Diesel

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SUMMARY OF OECD TEST 2071—NEBRASKA SUMMARY 412
FENDT 412 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 -1084 rpm)					
107.3 *(80.0)*	2100	6.30 *(23.83)*	0.409 *(0.249)*	17.05 *(3.36)*	
Standard Power Take-off Speed (1000 rpm)					
114.7 *(85.5)*	1937	6.44 *(24.39)*	0.392 *(0.239)*	17.79 *(3.51)*	
Maximum Power (2 hours)					
115.9 *(86.4)*	1800	6.34 *(24.00)*	0.381 *(0.232)*	18.27 *(3.60)*	
VARYING POWER AND FUEL CONSUMPTION					
107.3 *(80.0)*	2100	6.30 *(23.83)*	0.409 *(0.249)*	17.05 *(3.36)*	Air temperature
94.3 *(70.3)*	2170	5.67 *(21.47)*	0.420 *(0.255)*	16.62 *(3.27)*	68°F *(20°C)*
71.2 *(53.1)*	2193	4.59 *(17.37)*	0.449 *(0.273)*	15.52 *(3.06)*	Relative humidity
48.0 *(35.8)*	2216	3.49 *(13.20)*	0.508 *(0.309)*	13.77 *(2.71)*	22%
24.4 *(18.2)*	2241	2.43 *(9.20)*	0.697 *(0.424)*	10.04 *(1.98)*	Barometer
-- --	2275	1.39 *(5.26)*	-- --	-- --	29.7" Hg *(100.7 kPa)*

Maximum Torque - 408 lb.-ft. *(553 Nm)* at 1201 rpm
Maximum Torque Rise - 51.9%
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 *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—Low Range									
85.15 *(63.50)*	7100 *(31.59)*	4.50 *(7.24)*	2095	3.7	0.505 *(0.307)*	13.81 *(2.72)*	190 *(88)*	61 *(16)*	29.7 *(100.5)*
75% of Pull at Maximum Power—Low Range									
66.69 *(49.73)*	5315 *(23.64)*	4.71 *(7.57)*	2152	2.8	0.533 *(0.324)*	13.10 *(2.58)*	187 *(86)*	59 *(15)*	29.7 *(100.5)*
50% of Pull at Maximum Power—Low Range									
45.82 *(34.17)*	3555 *(15.81)*	4.83 *(7.78)*	2177	2.0	0.600 *(0.365)*	11.62 *(2.29)*	181 *(83)*	57 *(14)*	29.7 *(100.5)*
75% of Pull at Reduced Engine Speed—Low Range									
67.43 *(50.28)*	5370 *(23.89)*	4.71 *(7.58)*	1708	2.8	0.470 *(0.286)*	14.82 *(2.92)*	183 *(84)*	55 *(13)*	29.7 *(100.5)*
50% of Pull at Reduced Engine Speed—Low Range									
45.96 *(34.27)*	3570 *(15.87)*	4.83 *(7.78)*	1718	2.0	0.517 *(0.314)*	13.50 *(2.66)*	181 *(83)*	55 *(13)*	29.7 *(100.5)*

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

Dates of Test: January - March, 2003

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)*** 0.838 **Fuel weight** 6.98 lbs/gal *(0.836 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.** 00761723 **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.** 412/22/1417 **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 *(0-24)*, 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)*
					Low Range				
76.00	12370	2.30	2093	15.1	0.568	12.28	185	54	29.7
(56.66)	*(55.02)*	*(3.71)*			*(0.345)*	*(2.42)*	*(85)*	*(12)*	*(100.5)*
					Low Range				
89.96	10120	3.33	1800	7.1	0.487	14.31	190	45	29.7
(67.08)	*(45.01)*	*(5.36)*			*(0.296)*	*(2.82)*	*(88)*	*(7)*	*(100.5)*
					Low Range				
91.43	8900	3.85	1801	5.6	0.479	14.54	190	46	29.7
(68.18)	*(39.58)*	*(6.20)*			*(0.291)*	*(2.86)*	*(88)*	*(8)*	*(100.5)*
					Low Range				
92.40	7450	4.65	1800	4.1	0.476	14.64	190	46	29.7
(68.90)	*(33.14)*	*(7.49)*			*(0.289)*	*(2.88)*	*(88)*	*(8)*	*(100.5)*
					Low Range				
90.89	6080	5.61	1798	3.2	0.482	14.47	190	46	29.7
(67.78)	*(27.05)*	*(9.02)*			*(0.293)*	*(2.85)*	*(88)*	*(8)*	*(100.5)*
					Low Range				
90.47	5105	6.65	1799	2.7	0.486	14.37	190	46	29.7
(67.46)	*(22.70)*	*(10.70)*			*(0.295)*	*(2.83)*	*(88)*	*(8)*	*(100.5)*
					Low Range				
88.39	4370	7.58	1798	2.3	0.497	14.04	190	48	29.7
(65.91)	*(19.44)*	*(12.21)*			*(0.302)*	*(2.76)*	*(88)*	*(9)*	*(100.5)*
					High Range				
81.76	7425	4.13	1797	4.5	0.537	12.99	192	50	29.7
(60.97)	*(33.02)*	*(6.65)*			*(0.327)*	*(2.56)*	*(89)*	*(10)*	*(100.5)*
					High Range				
84.86	7160	4.44	1796	4.4	0.516	13.53	190	52	29.7
(63.28)	*(31.84)*	*(7.16)*			*(0.313)*	*(2.66)*	*(88)*	*(11)*	*(100.5)*
					High Range				
89.98	5945	5.68	1805	3.6	0.487	14.31	190	52	29.7
(67.10)	*(26.44)*	*(9.14)*			*(0.296)*	*(2.82)*	*(88)*	*(11)*	*(100.5)*
					High Range				
92.13	5095	6.78	1797	3.1	0.478	14.57	189	54	29.7
(68.70)	*(22.66)*	*(10.91)*			*(0.291)*	*(2.87)*	*(87)*	*(12)*	*(100.5)*
					High Range				
89.89	4270	7.89	1798	2.8	0.487	14.31	190	54	29.7
(67.03)	*(19.00)*	*(12.70)*			*(0.296)*	*(2.82)*	*(88)*	*(12)*	*(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. **2071**, Nebraska Summary 412, September 2, 2003.

Leonard L. Bashford
Director

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

TIRES AND WEIGHT

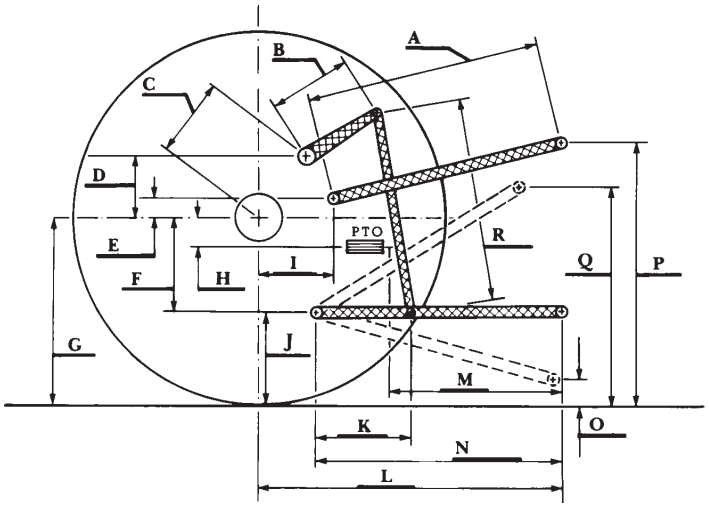
	Tested Without Ballast
Rear Tires–No., size, ply & psi *(kPa)*	Two 600/65R38;**; 12 *(80)*
Front Tires–No., size, ply & psi *(kPa)*	Two 540/65R24;**; 12 *(80)*
Height of Drawbar	18.5 in *(470 mm)*
Static Weight with operator– Rear	7595 lb *(3445 kg)*
– Front	4750 lb *(2155 kg)*
– Total	12345 lb *(5600 kg)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Engaged dB(A)	Front Wheel Drive Disengaged dB(A)
Sound level at 4.6 mph *(7.5 km/h)* - no load	70.0	70.0
Maximum Sound level	73.5	73.5
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*

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