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Nebraska Summary 440: Fendt 712 Vario Diesel

Nebraska Tractor Test Lab

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SUMMARY OF OECD TEST 2138—NEBRASKA SUMMARY 440

FENDT 712 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)					
110.0 (82.0)	2099	6.95 (26.29)	0.437 (0.266)	15.84 (3.12)	
Standard Power Take-off Speed (1000 rpm)					
118.1 (88.1)	1903	6.90 (26.12)	0.405 (0.246)	17.11 (3.37)	
Maximum Power (2 hours)					
118.4 (88.3)	1901	6.87 (26.00)	0.402 (0.245)	17.24 (3.40)	

VARYING POWER AND FUEL CONSUMPTION

110.0 (82.0)	2099	6.95 (26.29)	0.437 (0.266)	15.84 (3.12)	Air temperature
94.7 (70.6)	2122	6.28 (23.76)	0.459 (0.279)	15.09 (2.97)	66°F (19°C)
71.7 (53.5)	2143	5.19 (19.66)	0.502 (0.305)	13.81 (2.72)	Relative humidity
48.3 (36.0)	2165	4.02 (15.23)	0.578 (0.351)	12.00 (2.36)	28%
24.4 (18.2)	2184	2.85 (10.80)	0.810 (0.493)	8.55 (1.69)	Barometer
--	2201	1.85 (7.00)	--	--	29.5" Hg (99.9 kPa)
--			--	--	
Maximum Torque - 388 lb.-ft. (526 Nm) at 1499 rpm					
Maximum Torque Rise - 41.0%					
Torque rise at 1700 engine rpm - 30%					

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									
92.7 (69.1)	7145 (31.77)	4.87 (7.83)	2101	2.9	0.542 (0.330)	12.74 (2.51)	192 (89)	48 (9)	29.0 (98.3)
75% of Pull at Maximum Power—Low Range									
70.8 (52.8)	5320 (23.67)	4.99 (8.03)	2132	2.1	0.599 (0.364)	11.55 (2.27)	189 (87)	48 (9)	29.0 (98.3)
50% of Pull at Maximum Power—Low Range									
48.2 (35.9)	3545 (15.78)	5.10 (8.20)	2154	1.4	0.710 (0.432)	9.72 (1.91)	185 (85)	48 (9)	29.0 (98.3)
75% of Pull at Reduced Engine Speed—Low Range									
71.2 (53.1)	5335 (23.74)	5.00 (8.05)	1594	2.1	0.481 (0.292)	14.37 (2.83)	187 (86)	48 (9)	29.0 (98.3)
50% of Pull at Reduced Engine Speed—Low Range									
48.0 (35.8)	3525 (15.67)	5.11 (8.23)	1611	1.4	0.551 (0.335)	12.56 (2.47)	185 (85)	48 (9)	29.0 (98.3)

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.** 00000812279 **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)
84.9 (63.3)	15025 (66.84)	2.12 (3.41)	2112	15.2	Low Range 0.585 (0.356)	11.80 (2.33)	192 (89)	45 (7)	29.3 (99.2)
92.1 (68.7)	14235 (63.32)	2.43 (3.91)	1900	12.0	Low Range 0.523 (0.318)	13.20 (2.60)	190 (88)	45 (7)	29.3 (99.2)
96.3 (71.8)	11950 (53.15)	3.02 (4.86)	1900	7.0	Low Range 0.501 (0.305)	13.79 (2.72)	187 (86)	45 (7)	29.3 (99.3)
99.4 (74.1)	8395 (37.34)	4.44 (7.14)	1901	3.7	Low Range 0.485 (0.295)	14.22 (2.80)	192 (89)	41 (5)	29.4 (99.6)
98.6 (73.5)	6940 (30.88)	5.33 (8.57)	1901	2.9	Low Range 0.489 (0.298)	14.11 (2.78)	192 (89)	41 (5)	29.4 (99.6)
98.7 (73.6)	6280 (27.94)	5.90 (9.49)	1902	2.6	Low Range 0.489 (0.297)	14.13 (2.78)	190 (88)	43 (6)	29.4 (99.6)
96.7 (72.1)	5135 (22.84)	7.06 (11.37)	1903	2.1	Low Range 0.498 (0.303)	13.86 (2.73)	190 (88)	41 (5)	29.4 (99.6)
95.9 (71.5)	4505 (20.05)	7.98 (12.84)	1904	1.9	Low Range 0.504 (0.306)	13.71 (2.70)	190 (88)	41 (5)	29.4 (99.5)
93.6 (69.8)	3775 (16.79)	9.30 (14.97)	1903	1.6	Low Range 0.515 (0.313)	13.40 (2.64)	190 (88)	41 (5)	29.4 (99.5)
97.1 (72.4)	6900 (30.70)	5.28 (8.49)	1902	3.0	High Range 0.496 (0.302)	13.91 (2.74)	190 (88)	45 (7)	29.3 (99.1)
96.6 (72.0)	6115 (27.19)	5.92 (9.53)	1903	2.5	High Range 0.500 (0.304)	13.81 (2.72)	190 (88)	43 (6)	29.3 (99.1)
98.0 (73.1)	5250 (23.35)	7.00 (11.27)	1904	2.1	High Range 0.492 (0.299)	14.03 (2.76)	190 (88)	45 (7)	29.3 (99.1)
97.9 (73.0)	4655 (20.71)	7.89 (12.69)	1904	1.9	High Range 0.492 (0.299)	14.03 (2.76)	190 (88)	45 (7)	29.3 (99.1)
95.7 (71.4)	3850 (17.13)	9.32 (15.00)	1906	1.6	High Range 0.504 (0.306)	13.71 (2.70)	190 (88)	45 (7)	29.3 (99.2)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE: The performance figures on this report are the result of replacing the electronic engine control module of the Fendt 716 with the 712 module.

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. **2138**, Nebraska Summary 440, 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	72.0	70.5
Sound level at 4.6 mph (7.5 km/h) - no load	67.5	66.5
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)

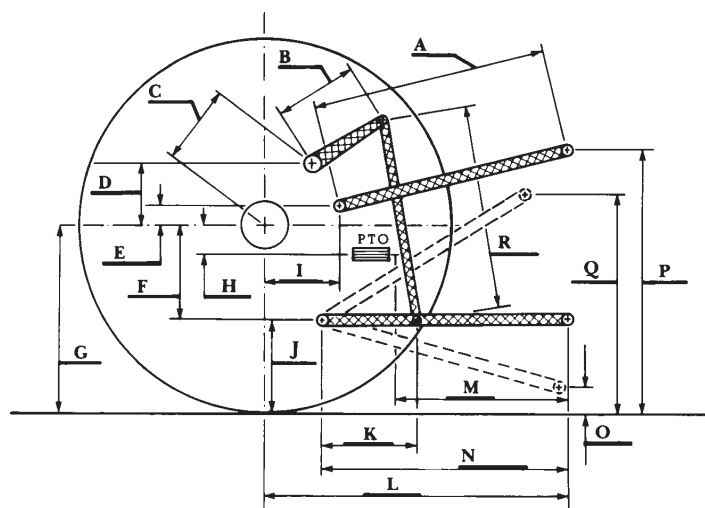
Delivery pressure: 2615 psi (180 bar) 2755 psi (190 bar)

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