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2021

Test 2245: Fendt 1156 Vario MT

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 2245-SUMMARY 1205

FENDT 1156 VARIO MT DIESEL

STEPLESS VARIODRIVE TRANSMISSION

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Diesel Consumption		D.E.F. Consumption		Mean Atmospheric Conditions
		Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Gal/hr (l/h)	
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—1379 rpm)						
520.55 (388.17)	1730	25.86 (97.88)	0.347 (0.211)	20.13 (3.97)	2.09 (7.92)	
Standard Power Take-off Speed (1300 rpm)						
520.61 (388.22)	1631	25.55 (96.74)	0.343 (0.209)	20.37 (4.01)	2.20 (8.34)	
Maximum Power (1 hour)						
523.18 (390.14)	1501	25.32 (95.86)	0.338 (0.206)	20.66 (4.07)	2.34 (8.86)	
VARYING POWER AND FUEL CONSUMPTION						
520.55 (388.17)	1730	25.86 (97.88)	0.347 (0.211)	20.13 (3.97)	2.09 (7.92)	Air temperature
445.58 (332.27)	1743	22.72 (86.00)	0.356 (0.217)	19.61 (3.86)	1.46 (5.52)	70°F (21°C)
335.83 (250.43)	1752	17.85 (67.58)	0.371 (0.226)	18.81 (3.71)	1.08 (4.09)	Relative humidity
225.70 (168.31)	1762	13.09 (49.56)	0.405 (0.246)	17.24 (3.40)	0.98 (3.72)	35%
113.18 (84.40)	1771	8.60 (32.57)	0.531 (0.323)	13.15 (2.59)	0.90 (3.42)	Barometer
2.29 (1.71)	1779	4.71 (17.83)	14.340 (8.723)	0.49 (0.10)	0.08 (0.29)	28.80" Hg (97.52 kPa)

Maximum torque - 1927 lb.-ft. (2613 Nm) at 1250 rpm
 Maximum torque rise - 22.0%
 Torque rise at 1384 engine rpm - 19.0%
 Power increase at 1501 engine rpm - 0.5%

DRAWBAR PERFORMANCE (Unballasted)

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)	D.E.F. Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med bulb	Barom. inch Hg (kPa)
Power at Rated Engine Speed—5.6 mph (9.0 km/h)								
436.28 (325.33)	29958 (133.26)	5.46 (8.79)	1730	2.7	0.411 (0.250)	16.98 (3.34)	199 (93)	45 (7)
75% of Pull at Rated Engine Speed—5.6 mph (9.0 km/h)								
333.11 (248.40)	22454 (99.88)	5.57 (8.96)	1748	1.2	0.421 (0.256)	16.60 (3.27)	202 (94)	52 (11)
50% of Pull at Rated Engine Speed—5.6 mph (9.0 km/h)								
222.01 (165.55)	14904 (66.29)	5.59 (8.99)	1758	0.8	0.468 (0.285)	14.93 (2.94)	204 (96)	52 (11)
75% of Pull at Reduced Engine Speed—5.6 mph (9.0 km/h)								
333.17 (248.44)	22435 (99.80)	5.57 (8.96)	1224	1.2	0.387 (0.235)	18.04 (3.55)	201 (94)	52 (11)
50% of Pull at Reduced Engine Speed—5.6 mph (9.0 km/h)								
222.11 (165.62)	14922 (66.38)	5.59 (8.99)	1177	0.6	0.406 (0.247)	17.21 (3.39)	204 (95)	53 (12)

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln, Nebraska 68583-0832

Dates of tests: October 22 to November 3, 2021

Manufacturer: AGCO Corporation, 4205 River Green Parkway, Duluth Ga 30096

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8388 **Fuel weight** 6.984 lbs/gal (0.837 kg/l) **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal (1.087 kg/l) **Oil SAE 10W-40 API service classification CK-4 Transmission and hydraulic lubricant** AGCO Permatran 821 XL fluid **Total time engine was operated:** 21.0 hours

ENGINE: Make MAN **Diesel Type** six cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) technology **Serial No.** *56859442555946* **Crankshaft** lengthwise **Rated engine speed** 1730 **Bore and stroke** 5.433" x 6.693" (138.0 mm x 170.0 mm) **Compression ratio** 18.0 to 1 **Displacement** 930 cu in (15256 ml) **Starting system** 24 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 and water separator **Fuel cooler** radiator for pump return fuel **Exhaust** DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) with a vertical muffler **Cooling medium temperature control** 2 thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 175.4 - 182.4 lb/h (79.6 - 82.7 kg/h) **High idle:** 1760 - 1800 rpm **Turbo boost:** nominal 29.7 - 32.6 psi (205 - 225 kPa) as measured 31.1 psi (214 kPa)

CHASSIS: Type Tracklayer-rubber tracked **Serial No.** *AGCF1156LMNNG1088* **Track width** 98.5" (2502 mm) to 128.0" (3251 mm) **Length of track on ground** 118.1" (3000 mm) **Hydraulic control system** direct engine drive **Transmission** CVT. Infinitely variable hydrostatic using variable displacement pump and motors **Nominal travel speeds mph (km/h)** forward - 0-25.0 mph (0-40 km/h), reverse - 0-8.7 mph (0-14 km/h) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** wet multiple disc hydraulically actuated by foot pedal **Steering** electro-hydraulic differential steering controlled by steering wheel **Power take-off** 1300 rpm at 1630 engine rpm **Unladen tractor mass** 45760 lb (20756 kg)

DRAWBAR PERFORMANCE

MANUAL MODE - 1730 ENGINE RPM DRAWBAR POWER AT SELECTED TRAVEL SPEED SETTINGS

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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. ^o F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3.1 mph (5.0 km/h)										
351.28 (261.95)	48879 (217.42)	2.70 (4.34)	1740	14.0	0.464 (0.282)	15.05 (2.96)	0.040 (0.024)	201 (94)	46 (8)	28.63 (96.95)
3.7 mph (6.0 km/h)										
409.37 (305.27)	44802 (199.29)	3.43 (5.52)	1736	9.2	0.434 (0.264)	16.08 (3.17)	0.041 (0.025)	200 (93)	47 (8)	28.62 (96.92)
4.3 mph (7.0 km/h)										
430.38 (320.93)	39077 (173.82)	4.13 (6.65)	1730	5.7	0.418 (0.254)	16.72 (3.29)	0.039 (0.024)	200 (93)	47 (8)	28.63 (96.95)
4.7 mph (7.5 km/h)										
433.15 (323.00)	36391 (161.87)	4.47 (7.19)	1730	4.7	0.415 (0.253)	16.82 (3.31)	0.037 (0.023)	200 (93)	46 (8)	28.86 (97.73)
5.0 mph (8.0 km/h)										
433.68 (323.39)	34085 (151.62)	4.77 (7.68)	1730	4.0	0.414 (0.252)	16.85 (3.32)	0.038 (0.023)	200 (93)	46 (8)	28.86 (97.73)
5.6 mph (9.0 km/h)										
436.26 (325.33)	29958 (133.26)	5.46 (8.79)	1730	2.7	0.411 (0.250)	16.98 (3.34)	0.037 (0.022)	199 (93)	45 (7)	28.84 (97.66)
6.2 mph (10.0 km/h)										
438.54 (327.02)	27001 (120.11)	6.09 (9.80)	1730	2.1	0.410 (0.250)	17.01 (3.35)	0.037 (0.023)	200 (93)	45 (7)	28.84 (97.66)
6.8 mph (11.0 km/h)										
441.05 (328.89)	24596 (109.41)	6.73 (10.82)	1730	1.7	0.407 (0.248)	17.16 (3.38)	0.038 (0.023)	200 (93)	47 (8)	28.86 (97.73)
7.5 mph (12.0 km/h)										
442.38 (329.88)	22813 (101.48)	7.27 (11.70)	1730	1.4	0.406 (0.247)	17.20 (3.39)	0.037 (0.023)	200 (93)	47 (8)	28.86 (97.71)
8.1 mph (13.0 km/h)										
440.30 (328.33)	20621 (91.72)	8.01 (12.89)	1730	1.1	0.407 (0.248)	17.16 (3.38)	0.038 (0.023)	200 (93)	47 (8)	28.85 (97.68)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: To facilitate drawbar testing the tractor was operated in manual cruise mode.

NOTE 2. The Fendt 1156 Vario MT T.E.C.U. (Tractor Electronic Control Unit) is compliant with ISOBUS 11783.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. The manufacturer's 3 point lift claim of 15000 lb (66.7 kN) at ball ends with 110 mm lift cylinders was not verified. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2245**, Nebraska Summary 1205, February 21, 2022.

Roger M. Hoy
Director

P.J. Jasa
J.D. Luck
S. Pitla
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	dB(A)
At no load at 4.6 mph (7.5 km/h) engine speed 1770 rpm	66.6
At no load at 4.6 mph (7.5 km/h) engine speed 1040 rpm	61.0
Bystander	86.7

Horizontal distance of drawbar hitch point behind rear wheel axis - 47.5" (1205 mm)

TRACKS, BALLAST AND WEIGHT	With Ballast	Without Ballast
Track width	36.0 in (915 mm)	36.0 in (915 mm)
Ballast - Cast iron (front end)	5600 lb (2540 kg)	None
- Cast iron (front idlers)	3665 lb (1662 kg)	None
- Cast iron (side)	2800 lb (1270 kg)	None
- Cast iron (rear axle)	1000 lb (454 kg)	None
Height of Drawbar	21.5 in (545 mm)	21.0 in (535 mm)
Static Weight with operator	59000 lb (26762 kg)	45935 lb (20836 kg)

DRAWBAR PERFORMANCE
MANUAL MODE - 1500 ENGINE RPM
DRAWBAR POWER AT SELECTED TRAVEL SPEED SETTINGS

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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3.1 mph (5.0 km/h)										
351.96 (262.46)	48784 (217.00)	2.71 (4.36)	1741	13.6	0.462 (0.281)	15.11 (2.98)	0.039 (0.024)	201 (94)	47 (8)	28.62 (96.92)
3.7 mph (6.0 km/h)										
413.06 (308.02)	45803 (203.74)	3.39 (5.45)	1669	9.9	0.433 (0.263)	16.13 (3.18)	0.043 (0.026)	199 (93)	47 (8)	28.62 (96.92)
4.3 mph (7.0 km/h)										
432.70 (322.66)	40244 (179.01)	4.04 (6.49)	1577	6.2	0.410 (0.249)	17.03 (3.35)	0.045 (0.027)	200 (93)	47 (8)	28.62 (96.92)
4.7 mph (7.5 km/h)										
438.18 (326.75)	36880 (164.05)	4.46 (7.17)	1527	4.8	0.402 (0.244)	17.39 (3.43)	0.047 (0.029)	200 (93)	48 (9)	28.61 (96.88)
5.0 mph (8.0 km/h)										
441.33 (329.10)	34340 (152.75)	4.82 (7.76)	1501	4.0	0.399 (0.243)	17.51 (3.45)	0.048 (0.029)	200 (93)	49 (9)	28.59 (96.82)
5.6 mph (9.0 km/h)										
443.51 (330.73)	30310 (134.83)	5.49 (8.84)	1501	2.9	0.397 (0.241)	17.61 (3.47)	0.047 (0.028)	200 (93)	49 (9)	28.58 (96.78)
6.2 mph (10.0 km/h)										
445.70 (332.36)	27199 (120.98)	6.15 (9.89)	1501	2.2	0.396 (0.241)	17.62 (3.47)	0.050 (0.030)	199 (93)	45 (7)	28.84 (97.66)
6.8 mph (11.0 km/h)										
447.63 (333.79)	24844 (110.51)	6.76 (10.87)	1500	1.7	0.393 (0.239)	17.78 (3.50)	0.054 (0.033)	199 (93)	47 (8)	28.85 (97.70)
7.5 mph (12.0 km/h)										
446.87 (333.23)	22588 (100.47)	7.42 (11.93)	1501	1.3	0.393 (0.239)	17.75 (3.50)	0.053 (0.032)	199 (93)	48 (9)	28.85 (97.70)
8.1 mph (13.0 km/h)										
440.09 (331.15)	20653 (91.87)	8.07 (12.98)	1501	1.0	0.395 (0.240)	17.68 (3.48)	0.053 (0.032)	199 (93)	48 (9)	28.85 (97.70)

DRAWBAR PERFORMANCE
BALLASTED AT 1500 ENGINE RPM
DRAWBAR POWER AT SELECTED TRAVEL SPEED SETTINGS

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)	D.E.F. Consumption lb/hp.hr (kg/kW.h)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
2.5 mph (4.0 km/h)										
379.00 (282.62)	63651 (283.13)	2.24 (3.60)	1738	11.1	0.453 (0.276)	15.41 (3.04)	0.040 (0.024)	202 (94)	43 (6)	28.78 (97.46)
3.1 mph (5.0 km/h)										
426.62 (318.13)	55517 (246.95)	2.89 (4.64)	1603	7.5	0.417 (0.254)	16.73 (3.30)	0.046 (0.028)	200 (93)	43 (6)	28.79 (97.49)
3.7 mph (6.0 km/h)										
442.45 (329.93)	47558 (211.55)	3.49 (5.62)	1577	5.0	0.403 (0.245)	17.35 (3.42)	0.047 (0.029)	199 (93)	44 (7)	28.80 (97.53)
4.3 mph (7.0 km/h)										
447.36 (333.60)	43919 (195.36)	3.82 (6.15)	1538	4.1	0.396 (0.241)	17.64 (3.48)	0.051 (0.031)	199 (93)	45 (7)	28.80 (97.53)
4.7 mph (7.5 km/h)										
451.98 (337.04)	38025 (169.14)	4.46 (7.18)	1500	2.9	0.391 (0.238)	17.84 (3.51)	0.051 (0.031)	199 (93)	46 (8)	28.79 (97.49)
5.0 mph (8.0 km/h)										
452.96 (337.77)	35332 (157.16)	4.81 (7.74)	1501	2.4	0.390 (0.237)	17.90 (3.53)	0.052 (0.032)	199 (93)	46 (8)	28.80 (97.53)
5.6 mph (9.0 km/h)										
452.21 (337.21)	31080 (138.25)	5.46 (8.79)	1500	1.8	0.391 (0.238)	17.88 (3.52)	0.050 (0.030)	199 (93)	48 (9)	28.80 (97.51)
6.2 mph (10.0 km/h)										
451.93 (337.00)	27765 (123.50)	6.11 (9.83)	1501	1.4	0.392 (0.238)	17.82 (3.51)	0.051 (0.031)	198 (92)	49 (9)	28.80 (97.53)
6.8 mph (11.0 km/h)										
451.66 (336.80)	25227 (112.21)	6.72 (10.81)	1499	1.1	0.392 (0.238)	17.83 (3.51)	0.051 (0.031)	198 (92)	49 (9)	28.80 (97.53)
7.5 mph (12.0 km/h)										
449.86 (335.46)	22857 (101.67)	7.38 (11.88)	1510	0.9	0.395 (0.240)	17.69 (3.49)	0.050 (0.030)	199 (93)	50 (10)	28.80 (97.53)
8.1 mph (13.0 km/h)										
444.98 (331.82)	20810 (92.57)	8.02 (12.91)	1506	0.8	0.397 (0.241)	17.60 (3.47)	0.051 (0.031)	198 (92)	51 (11)	28.79 (97.49)

HYDRAULIC PERFORMANCE

CATEGORY: 4N

Quick Attach: yes

OECD Static test

Maximum force exerted through whole range: with 2 x 130 mm lift cylinders
 at 24" (610 mm) behind QC ends: 23359 lbs (103.9 kN)
 at QC ends: 22320 lbs (99.3 kN)

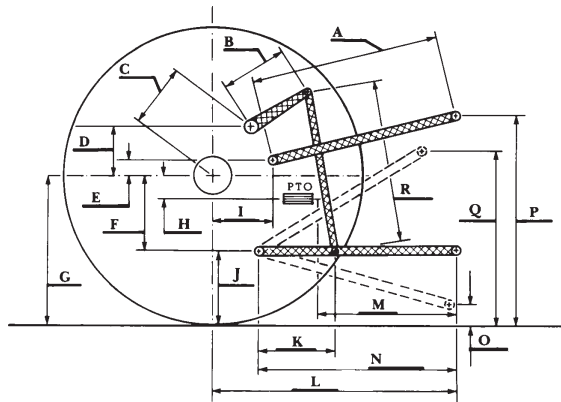
	Pump 1	Pump 2
	3 outlet sets combined	
i) Sustained pressure at compensator cutoff:	3037 psi (209 bar)	3041 psi (210 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	62.0 GPM (234.7 l/min)	61.9 GPM (234.4 l/min)
Combined flow:	123.9 GPM (469.1 l/min)	
iii) Pump delivery rate at maximum		
hydraulic power:	61.0 GPM (230.8 l/min)	59.4 GPM (224.7 l/min)
Delivery pressure:	2716 psi (187 bar)	2773 psi (191 bar)
Power:	96.6 HP (72.0 kW)	96.1 HP (71.6 kW)

	single outlet set	
i) Sustained pressure at compensator cutoff:	3042 psi (210 bar)	3045 psi (210 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	37.7 GPM (142.9 l/min)	37.0 GPM (139.9 l/min)
iii) Pump delivery rate at maximum		
hydraulic power:	35.3 GPM (133.6 l/min)	35.1 GPM (132.8 l/min)
Delivery pressure:	2491 psi (172 bar)	2538 psi (175 bar)
Power:	51.3 HP (38.3 kW)	51.9 HP (38.7 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	30.1	765
B	21.9	555
C	27.7	678
D	24.8	630
E	15.0	382
F	12.2	310
G	33.7	855
H	0.6	15
I	22.7	576
J	21.5	545
K	25.6	649
L	53.9	1369
*L'	60.4	1534
M	26.1	664
N	43.1	1094
O	9.1	230
P	48.4	1230
Q	42.9	1090
R	46.9	1190

*L' to Quick Attach ends



RECOMMENDED CITATION FORMAT:

NTTL. (2022). Nebraska OECD Tractor test 2245 for Fendt 1156 Vario MT Diesel. Lincoln, NE: Nebraska Tractor Test Laboratory. Retrieved from <http://tractortestlab.unl.edu>



FENDT 1156 VARIO MT DIESEL
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