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January 2004

## Nebraska Summary 477: AGCO RT120 PowrMaxx Diesel

Nebraska Tractor Test Lab

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# SUMMARY OF OECD TEST 2235-NEBRASKA SUMMARY 477

## AGCO RT 120 POWRMAXX DIESEL

### CONTINUOUSLY VARIABLE TRANSMISSION

#### 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—1081 rpm)</b>					
119.9 (89.4)	2199	8.12 (30.72)	0.473 (0.288)	14.77 (2.91)	
<b>Maximum Power (2 hours)</b>					
122.2 (91.1)	2150	7.96 (30.13)	0.455 (0.277)	15.34 (3.02)	
<b>Standard Power Take-off Speed(1000 rpm)</b>					
120.6 (89.9)	2034	7.60 (28.76)	0.440 (0.268)	15.87 (3.13)	

VARYING POWER AND FUEL CONSUMPTION					
119.9 (89.4)	2199	8.12 (30.72)	0.473 (0.288)	14.77 (2.91)	Air temperature
104.3 (77.8)	2250	7.42 (28.06)	0.497 (0.302)	14.06 (2.77)	72°F (22°C)
79.1 (59.0)	2278	6.29 (23.79)	0.556 (0.338)	12.58 (2.48)	Relative humidity
54.3 (40.5)	2335	5.13 (19.43)	0.662 (0.402)	10.57 (2.08)	72%
27.6 (20.6)	2382	3.97 (15.03)	1.004 (0.611)	6.96 (1.37)	Barometer
--	2441	2.46 (9.32)	--	--	29.4" Hg (99.4 kPa)

Maximum Torque - 408 lb.-ft. (553 Nm) at 1300 rpm  
 Maximum Torque Rise - 42.5%  
 Torque rise at 1800 engine rpm - 18%

#### 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—Turtle</b>									
100.3 (74.8)	7735 (34.40)	4.86 (7.83)	2202	3.4	0.565 (0.343)	12.39 (2.44)	151 (66)	70 (21)	29.5 (99.8)
<b>75% of Pull at Maximum Power—Turtle</b>									
78.2 (58.3)	5780 (25.71)	5.07 (8.17)	2268	2.6	0.632 (0.384)	11.07 (2.18)	149 (65)	72 (22)	29.5 (99.7)
<b>50% of Pull at Maximum Power—Turtle</b>									
53.8 (40.1)	3845 (17.10)	5.25 (8.44)	2314	1.8	0.758 (0.461)	9.23 (1.82)	149 (65)	72 (22)	29.5 (99.7)
<b>75% of Pull at Reduced Engine Speed—Turtle</b>									
77.9 (58.1)	5785 (25.73)	5.05 (8.13)	1962	2.6	0.538 (0.328)	12.98 (2.56)	153 (67)	70 (21)	29.5 (99.7)
<b>50% of Pull at Reduced Engine Speed—Turtle</b>									
54.2 (40.4)	3845 (17.11)	5.29 (8.51)	2025	1.8	0.641 (0.390)	10.91 (2.15)	154 (68)	70 (20)	29.5 (99.7)

**Location of tests:** DLG testing station for Agricultural Machinery, Max - Eyth - Weg 1 D-64823, Gros-Umstadt, Germany

**Dates of tests:** April - June, 2004

**Manufacturer:** AGCO S.A., BP307, Avenue Blaise Pascal, 60026 Beauvais, France

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F (15°/15°C)** 0.839 **Fuel weight** 6.99 lbs/gal (0.8379 kg/l) **Oil SAE 10W40 API service classification** CH4 **Transmission and hydraulic lubricant** SAE10W/40 **Front axle lubricant** SAE 85W/90 gear oil

**ENGINE: Make** Cummins **Diesel Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** 21600364 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.094" x 5.197" (104.0 mm x 132.0 mm) **Compression ratio** 17.5 to 1 **Displacement** 410 cu in (6728 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 final drive oil, radiator for transmission oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

**CHASSIS: Type** front wheel assist **Serial No.** N119001 **Tread width** rear 69.3" (1760 mm) to 119.1" (3026 mm) front 63.4" (1610 mm) to 72.6" (1844 mm) **Wheelbase** 109.4" (2780 mm) **Hydraulic control system** direct engine drive **Transmission** AGCO CVT. 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 - 17 (0 - 28), high range 0 - 25 (0 - 40) reverse: Low range 0 - 10 (0 - 16), high range 0 - 24 (0 - 38) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2062 engine rpm or 1000 rpm at 2033 engine rpm **Unladen tractor mass** 15055 lb (6830 kg)

## DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)

### MAXIMUM POWER AT SELECTED SPEEDS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. <sup>°</sup> F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
86.1 (64.2)	14235 (63.32)	2.27 (3.65)	2239	14.9	Turtle 0.638 (0.388)	10.96 (2.16)	147 (64)	72 (22)	29.4 (99.7)
96.7 (72.1)	13100 (58.28)	2.77 (4.45)	2152	9.8	Turtle 0.574 (0.349)	12.18 (2.40)	149 (65)	68 (20)	29.4 (99.7)
100.3 (74.8)	11535 (51.31)	3.26 (5.25)	2156	6.2	Turtle 0.558 (0.339)	12.54 (2.47)	147 (64)	68 (20)	29.4 (99.6)
100.3 (74.8)	10610 (47.20)	3.54 (5.70)	2156	5.1	Turtle 0.553 (0.337)	12.64 (2.49)	147 (64)	66 (19)	29.4 (99.6)
101.0 (75.3)	8940 (39.76)	4.24 (6.82)	2151	4.0	Turtle 0.556 (0.338)	12.59 (2.48)	147 (64)	66 (19)	29.4 (99.6)
101.5 (75.7)	7875 (35.02)	4.83 (7.78)	2151	3.3	Turtle 0.556 (0.338)	12.59 (2.48)	149 (65)	66 (19)	29.3 (99.2)
100.0 (74.6)	6735 (29.95)	5.57 (8.96)	2151	2.9	Turtle 0.558 (0.339)	12.54 (2.47)	151 (66)	68 (20)	29.3 (99.2)
98.8 (73.7)	5840 (25.97)	6.35 (10.22)	2150	2.5	Turtle 0.562 (0.342)	12.44 (2.45)	153 (67)	68 (20)	29.3 (99.2)
98.8 (73.7)	5255 (23.37)	7.05 (11.34)	2152	2.1	Turtle 0.562 (0.342)	12.44 (2.45)	154 (68)	68 (20)	29.3 (99.2)
97.2 (72.5)	4475 (19.90)	8.15 (13.12)	2154	1.8	Turtle 0.571 (0.347)	12.24 (2.41)	156 (69)	68 (20)	29.3 (99.2)
95.5 (71.2)	3795 (16.88)	9.44 (15.19)	2150	1.4	Turtle 0.581 (0.353)	12.04 (2.37)	156 (69)	66 (19)	29.3 (99.2)
93.4 (69.7)	3280 (14.60)	10.68 (17.18)	2154	1.1	Turtle 0.593 (0.361)	11.78 (2.32)	154 (68)	68 (20)	29.3 (99.2)
97.0 (72.3)	6235 (27.73)	5.83 (9.39)	2151	2.8	Rabbit 0.572 (0.348)	12.23 (2.41)	154 (68)	68 (20)	29.4 (99.6)
99.6 (74.3)	5845 (26.00)	6.39 (10.28)	2150	2.6	Rabbit 0.558 (0.339)	12.54 (2.47)	156 (69)	66 (19)	29.4 (99.6)
99.9 (74.5)	5135 (22.83)	7.30 (11.75)	2152	2.3	Rabbit 0.556 (0.338)	12.59 (2.48)	156 (69)	64 (18)	29.4 (99.6)
99.6 (74.3)	4605 (20.49)	8.10 (13.04)	2150	2.0	Rabbit 0.558 (0.340)	12.53 (2.47)	156 (69)	64 (18)	29.4 (99.6)
98.7 (73.6)	4050 (18.02)	9.14 (14.71)	2153	1.7	Rabbit 0.565 (0.343)	12.39 (2.44)	156 (69)	64 (18)	29.4 (99.6)
97.2 (72.5)	3635 (16.17)	10.03 (16.14)	2156	1.4	Rabbit 0.571 (0.347)	12.24 (2.41)	158 (70)	66 (19)	29.4 (99.7)

**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 claim of 71 dB(A) cab sound level. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2235**, Nebraska Summary 477, January 17, 2006.

Leonard L. Bashford  
Director

M.F. Kocher  
V.I. Adamchuk  
J.A. Smith  
Board of Tractor Test Engineers

**DRAWBAR PERFORMANCE**  
**(Ballasted - 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)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp.°F cool- ing med	°C Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—Turtle</b>									
98.2 (73.2)	6635 (29.52)	5.55 (8.93)	2204	2.5	0.572 (0.348)	12.23 (2.41)	153 (67)	81 (27)	29.4 (99.7)
<b>75% of Pull at Maximum Power—Turtle</b>									
76.3 (56.9)	4950 (22.02)	5.78 (9.31)	2271	1.9	0.643 (0.391)	10.87 (2.14)	156 (69)	81 (27)	29.4 (99.7)
<b>50% of Pull at Maximum Power—Turtle</b>									
52.6 (39.2)	3280 (14.60)	6.01 (9.67)	2314	1.2	0.767 (0.467)	9.12 (1.80)	154 (68)	81 (27)	29.4 (99.7)
<b>75% of Pull at Reduced Engine Speed—Turtle</b>									
76.8 (57.3)	4955 (22.03)	5.82 (9.36)	2003	1.9	0.568 (0.346)	12.31 (2.43)	153 (67)	79 (26)	29.4 (99.7)
<b>50% of Pull at Reduced Engine Speed—Turtle</b>									
52.5 (39.1)	3275 (14.57)	6.01 (9.67)	2040	1.1	0.662 (0.402)	10.57 (2.08)	153 (67)	77 (25)	29.4 (99.7)

<b>TRACTOR SOUND LEVEL WITH CAB</b>	<b>Front wheel drive</b>	
	<b>Engaged dB(A)</b>	<b>Disengaged dB(A)</b>
At no load at 4.7 mph (7.5 km/h)	74.0	73.0
Bystander		--

<b>TIRES, BALLAST AND WEIGHT</b>	<b>With Ballast</b>	<b>Without Ballast</b>
<b>Rear Tires</b> - No., size, ply & psi(kPa)	Four 18.4R38;**,7(50)	Two 18.4R38;**,16(110)
<b>Ballast</b> - Duals (total)	1325 lb (601 kg)	None
- Cast Iron (total)	None	None
<b>Front Tires</b> - No., size, ply & psi(kPa)	Two 14.9R28;**,12(80)	Two 14.9R28;**,12(80)
<b>Ballast</b> - Liquid (total)	None	None
- Cast Iron (total)	None	None
<b>Height of Drawbar</b>	16.9 in (430 mm)	16.9 in (430 mm)
<b>Static Weight with operator</b> - Rear	11355 lb (5150 kg)	10030 lb (4550 kg)
- Front	5190 lb (2355 kg)	5190 lb (2355 kg)
- Total	16545 lb (7505 kg)	15220 lb (6905 kg)

**DRAWBAR PERFORMANCE**  
**(Ballasted - Front Drive Engaged)**  
**MAXIMUM POWER AT SELECTED SPEEDS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel 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)
84.5 (63.0)	16815 (74.80)	1.88 (3.03)	2248	15.1	Turtle 0.644 (0.392)	10.86 (2.14)	151 (66)	72 (22)	29.4 (99.7)
92.9 (69.3)	15845 (70.48)	2.20 (3.54)	2149	12.1	Turtle 0.597 (0.363)	11.73 (2.31)	149 (65)	72 (22)	29.5 (99.8)
98.7 (73.6)	13020 (57.92)	2.84 (4.57)	2151	6.5	Turtle 0.563 (0.343)	12.41 (2.45)	153 (67)	75 (24)	29.5 (99.9)
97.7 (72.9)	11155 (49.63)	3.28 (5.28)	2149	4.6	Turtle 0.558 (0.340)	12.53 (2.47)	154 (68)	75 (24)	29.5 (100.0)
99.3 (74.1)	10455 (46.51)	3.56 (5.73)	2151	4.2	Turtle 0.558 (0.339)	12.54 (2.47)	154 (68)	75 (24)	29.5 (100.0)
100.7 (75.1)	9035 (40.19)	4.18 (6.72)	2151	3.2	Turtle 0.553 (0.337)	12.64 (2.49)	156 (69)	75 (24)	29.5 (100.0)
103.3 (77.0)	8075 (35.92)	4.80 (7.72)	2150	2.9	Turtle 0.542 (0.330)	12.90 (2.54)	153 (67)	68 (20)	29.5 (100.0)
102.1 (76.1)	7005 (31.16)	5.47 (8.80)	2151	2.4	Turtle 0.547 (0.333)	12.74 (2.51)	153 (67)	70 (21)	29.5 (100.0)
101.6 (75.8)	6045 (26.89)	6.31 (10.15)	2150	2.1	Turtle 0.551 (0.335)	12.69 (2.50)	156 (69)	68 (20)	29.6 (100.1)
100.2 (74.7)	5285 (23.50)	7.11 (11.45)	2151	1.7	Turtle 0.558 (0.339)	12.54 (2.47)	156 (69)	68 (20)	29.6 (100.1)
99.1 (73.9)	4595 (20.44)	8.09 (13.02)	2150	1.5	Turtle 0.565 (0.343)	12.39 (2.44)	156 (69)	70 (21)	29.6 (100.1)
97.1 (72.4)	3925 (17.46)	9.28 (14.93)	2158	1.3	Turtle 0.578 (0.351)	12.10 (2.38)	156 (69)	70 (21)	29.5 (100.0)
94.0 (70.1)	3230 (14.36)	10.92 (17.57)	2158	1.0	Turtle 0.596 (0.363)	11.73 (2.31)	158 (70)	70 (21)	29.5 (100.0)
100.2 (74.7)	6850 (28.90)	5.79 (9.31)	2150	2.4	Rabbit 0.558 (0.339)	12.54 (2.47)	154 (68)	72 (22)	29.5 (99.8)
99.8 (74.4)	5910 (26.28)	6.33 (10.19)	2150	2.0	Rabbit 0.560 (0.340)	12.49 (2.46)	154 (68)	73 (23)	29.5 (99.8)
99.0 (73.8)	5205 (23.15)	7.13 (11.48)	2151	1.8	Rabbit 0.565 (0.343)	12.39 (2.44)	154 (68)	73 (23)	29.5 (99.8)
98.7 (73.6)	4635 (20.61)	7.98 (12.85)	2150	1.6	Rabbit 0.565 (0.344)	12.38 (2.44)	154 (68)	75 (24)	29.4 (99.7)
97.1 (72.4)	3975 (17.69)	9.16 (14.74)	2153	1.3	Rabbit 0.574 (0.349)	12.18 (2.40)	158 (70)	73 (23)	29.4 (99.7)
95.0 (70.8)	3490 (15.52)	10.20 (16.43)	2155	1.1	Rabbit 0.586 (0.357)	11.93 (2.35)	158 (70)	73 (23)	29.4 (99.7)
93.7 (69.9)	3140 (13.96)	11.20 (18.02)	2150	1.0	Rabbit 0.592 (0.360)	11.80 (2.32)	160 (71)	75 (24)	29.4 (99.7)

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

CATEGORY: II

Quick Attach: None

Maximum force exerted

through whole range: 10915 lbs (48.55 kN) (CVT transmission)  
8923 lbs (39.7 kN) (Quadrashift transmission)

- i) Opening pressure of relief valve: NA
- Sustained pressure of the open relief valve: 2900 psi (200 bar)
- ii) Pump delivery rate at minimum pressure: 33.6 GPM (127.4 l/min)
- iii) Pump delivery rate at maximum
  - hydraulic power: 29.3 GPM (110.8 l/min)
  - Delivery pressure: 2740 psi (189 bar)
  - Power: 46.8 HP (34.9 kW)

### CVT TRANSMISSION HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	29.1	740
B	14.0	355
C	13.8	351
D	11.6	295
E	5.5	140
F	9.8	250
G	32.2	820
H	2.8	70
I	17.5	445
J	22.4	570
K	26.2	665
L	45.1	1145
M	26.0	660
N	40.6	1030
O	7.9	200
P	46.5	1180
Q	36.2	920
R	29.3	745

### THREE POINT HITCH PERFORMANCE QUADRASHIFT TRANSMISSION

Observed Maximum Pressure psi. (bar) 2800 (193)  
Location: lift cylinder  
Hydraulic oil temperature: °F (°C) 149 (65)  
Location: hydraulic sump  
Category: II  
Quick attach: none

#### SAE Static Test—System pressure 2520 psi (174 Bar)

Hitch point distance to ground level in. (mm)	8.0 (203)	15.1 (384)	22.0 (559)	29.3 (744)	36.2 (919)
Lift force on frame lb	12539	11933	11629	11129	9939
" " " " " " (kN)	(55.8)	(53.1)	(51.7)	(49.5)	(44.2)

### QUADRASHIFT TRANSMISSION HITCH DIMENSIONS AS TESTED—NO LOAD

	SAE TEST		OECD TEST	
	inch	mm	inch	mm
A	27.6	702	28.2	716
B	11.6	295	11.6	295
C	13.9	354	13.9	354
D	13.0	330	13.0	330
E	7.9	200	7.9	200
F	10.2	260	10.2	260
G	32.3	820	32.3	820
H	0.3	8	0.3	8
I	15.3	389	15.3	389
J	22.1	560	22.1	560
K	21.5	545	21.5	545
L	40.9	1040	40.9	1040
M	22.2	565	22.2	565
N	37.0	940	37.0	940
O	8.0	203	8.0	203
P	41.1	1043	46.1	1170
Q	36.0	914	36.0	914
R	29.4	748	29.4	748

