

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.
Larsen

January 2007

Test 1903: AGCO LT 100A Powrmaxx Diesel

Tractor Museum

University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

Follow this and additional works at: <http://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Applied Mechanics Commons](#)

Museum, Tractor, "Test 1903: AGCO LT 100A Powrmaxx Diesel" (2007). *Nebraska Tractor Tests*. 2080.
<http://digitalcommons.unl.edu/tractormuseumlit/2080>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

NEBRASKA OECD TRACTOR TEST 1903 - SUMMARY 569

AGCO RT 100A POWRMXX 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1082 rpm)					
107.77 (80.36)	2200	7.09 (26.85)	0.461 (0.280)	15.19 (2.99)	
Standard Power Take-off Speed(1000rpm)					
116.14 (86.60)	2034	6.93 (26.24)	0.418 (0.254)	16.76 (3.30)	
Maximum Power (1 hour)					
117.73 (87.79)	1900	6.68 (25.30)	0.397 (0.242)	17.62 (3.47)	

VARYING POWER AND FUEL CONSUMPTION

107.77 (80.36)	2200	7.09 (26.85)	0.461 (0.280)	15.19 (2.99)	Air temperature
92.05 (68.64)	2212	6.37 (24.12)	0.485 (0.295)	14.45 (2.85)	78°F (26°C)
69.35 (51.72)	2222	5.24 (19.85)	0.529 (0.322)	13.23 (2.61)	Relative humidity
46.57 (34.73)	2233	4.13 (15.63)	0.621 (0.377)	11.28 (2.22)	49%
23.26 (17.34)	2243	3.09 (11.68)	0.929 (0.565)	7.54 (1.48)	Barometer
1.42 (1.06)	2252	2.13 (8.06)	10.473 (6.370)	0.67 (0.13)	28.76" Hg (97.39 kPa)

Maximum torque - 410 lb.-ft. (555 Nm) at 1200 rpm

Maximum torque rise - 59.2%

Torque rise at 1802 engine rpm - 34%

Power increase at 1900 rpm - 9.2%

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—4.3 mph(7.0 km/h)									
89.72 (66.90)	8067 (35.88)	4.17 (6.71)	2199	2.21	0.553 (0.336)	12.67 (2.50)	183 (84)	70 (21)	28.80 (97.52)
75% of Pull at Maximum Power—4.3 mph(7.0 km/h)									
68.09 (50.78)	6056 (26.94)	4.22 (6.79)	2215	1.53	0.615 (0.374)	11.38 (2.24)	183 (84)	78 (26)	28.77 (97.43)
50% of Pull at Maximum Power—4.3 mph(7.0 km/h)									
46.02 (34.31)	4030 (17.93)	4.28 (6.89)	2227	0.87	0.727 (0.442)	9.62 (1.90)	182 (84)	78 (26)	28.76 (97.39)
75% of Pull at Reduced Engine Speed—5.4 mph(8.6 km/h)									
68.02 (50.72)	6079 (27.04)	4.20 (6.75)	1750	1.50	0.495 (0.301)	14.13 (2.78)	188 (87)	78 (26)	28.76 (97.39)
50% of Pull at Reduced Engine Speed—6.8 mph(10.9 km/h)									
46.13 (34.40)	4005 (17.81)	4.32 (6.95)	1413	0.82	0.515 (0.313)	13.60 (2.68)	188 (87)	78 (26)	28.76 (97.39)

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

Dates of tests: May 30-June 1, 2007

Manufacturer: AGCO S.A., BP 307, Avenue Blaise Pascal, 60026 Beauvais, France

FUEL, OIL and TIME: Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8407 Fuel weight 7.000 lbs/gal (0.839 kg/l) Oil SAE 10W40 API service classification CH-4 Transmission and hydraulic lubricant AGCO Power Fluid 821 XL fluid Front axle lubricant AGCO 715 gear lube Total time engine was operated 17.0 hours

Engine: Make Sisu Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** S19487 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.252" x 4.724" (108.0 mm x 120.0 mm) **Compression ratio** 18.5 to 1 **Displacement** 402 cu in (6596 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

ENGINE OPERATING PARAMETERS: Fuel rate: 47.7 - 51.1 lb/h (21.6 - 23.2 kg/h) High idle: 2225-2275 rpm Turbo boost: nominal 11.9 - 13.3 psi (82 - 92 kPa) as measured 12.6 psi (87 kPa)

CHASSIS: Type front wheel assist **Serial No.** R325046 **Tread width** rear 63.5" (1613 mm) to 110.4" (2803 mm) front 61.2" (1555 mm) to 89.1" (2264 mm) **Wheelbase** 113.7" (2889 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 - 11 (0 - 18), high range 0 - 12 (0 - 19) **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** 15100 lb (6849 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 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)
					2.2 mph(3.5 km/h)				
73.09 (54.50)	15145 (67.37)	1.81 (2.91)	2211	13.00	0.626 (0.381)	11.18 (2.20)	182 (83)	65 (18)	28.82 (97.60)
					2.5 mph(4.0 km/h)				
84.38 (62.92)	14482 (64.42)	2.18 (3.52)	2205	9.14	0.581 (0.354)	12.04 (2.37)	183 (84)	67 (19)	28.82 (97.60)
					3.1 mph(5.0 km/h)				
95.22 (71.01)	13719 (61.03)	2.60 (4.19)	2035	6.76	0.515 (0.313)	13.58 (2.68)	184 (84)	68 (20)	28.81 (97.56)
					3.7 mph(6.0 km/h)				
98.86 (73.72)	12429 (55.29)	2.98 (4.80)	1903	5.57	0.480 (0.292)	14.60 (2.88)	184 (85)	69 (21)	28.81 (97.56)
					4.3 mph(7.0 km/h)				
99.68 (74.33)	10508 (46.74)	3.56 (5.73)	1905	3.81	0.473 (0.288)	14.79 (2.91)	187 (86)	71 (22)	28.80 (97.53)
					5.0 mph(8.0 km/h)				
99.15 (73.94)	9032 (40.17)	4.12 (6.63)	1900	2.81	0.476 (0.289)	14.71 (2.90)	188 (86)	73 (23)	28.79 (97.49)
					5.6 mph(9.0 km/h)				
98.32 (73.32)	7991 (35.54)	4.61 (7.43)	1904	2.39	0.479 (0.291)	14.62 (2.88)	186 (86)	74 (23)	28.79 (97.49)
					6.2 mph(10.0 km/h)				
97.69 (72.85)	7001 (31.14)	5.23 (8.42)	1901	1.91	0.484 (0.294)	14.47 (2.85)	186 (86)	75 (24)	28.78 (97.46)
					6.8 mph(11.0 km/h)				
98.06 (73.12)	6478 (28.82)	5.68 (9.14)	1903	1.67	0.480 (0.292)	14.57 (2.87)	186 (85)	76 (24)	28.78 (97.46)
					7.5 mph(12.0 km/h)				
96.76 (72.16)	5778 (25.70)	6.28 (10.11)	1902	1.44	0.487 (0.296)	14.38 (2.83)	187 (86)	77 (25)	28.77 (97.43)
					8.1 mph(13.0 km/h)				
95.16 (70.96)	5330 (23.71)	6.70 (10.77)	1903	1.23	0.494 (0.301)	14.16 (2.79)	189 (87)	76 (24)	28.73 (97.29)
					8.7 mph(14.0 km/h)				
94.03 (70.12)	4847 (21.56)	7.27 (11.71)	1901	1.10	0.507 (0.309)	13.80 (2.72)	190 (88)	75 (24)	28.73 (97.29)
					9.3 mph(15.0 km/h)				
93.15 (69.46)	4459 (19.83)	7.83 (12.61)	1906	1.03	0.507 (0.308)	13.81 (2.72)	190 (88)	72 (22)	28.72 (97.26)

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 AGCO RT 120A with the AGCO RT 100A module.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 144°F (62°C). 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 and correct report of official Tractor Test No. **1903**, Nebraska Summary 569, July 2, 2007.

Roger M. Hoy
Director

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

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load at 4.7 mph(7.5 km/h)(engine - 2250 rpm)	68.5	68.1
At no load at 4.7 mph(7.5 km/h)(engine - 1200 rpm)	63.9	63.2
Bystander in Rabbit range	--	83.9

TIRES, BALLAST 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 520/85R38;*,12(85)
 Two 380/85R30;*,12(85)
 17.0 in (430 mm)
 9885 lb (4484 kg)
 5390 lb (2445 kg)
 15275 lb (6929 kg)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

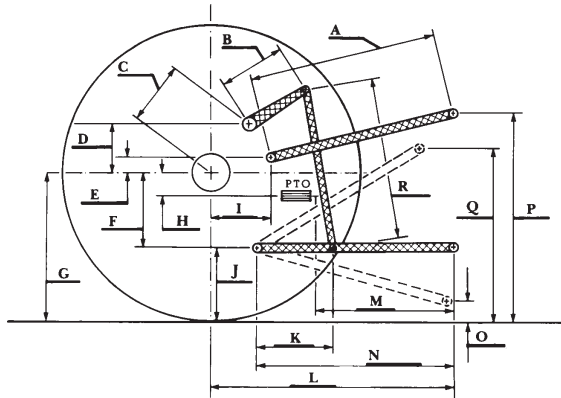
CATEGORY: II	
Quick Attach: None	
Maximum force exerted through whole range:	10915 lbs (48.55 kN) CVT Transmission 8923 lbs (39.7 kN) Quadrashift Transmission
i) Opening pressure of relief valve:	NA
Sustained pressure of the open relief valve:	2864 psi (198 bar)
ii) Pump delivery rate at minimum pressure:	30.4 GPM (115.1 l/min)
iii) Pump delivery rate at maximum hydraulic power:	26.3 GPM (99.6 l/min)
Delivery pressure:	2714 psi (187 bar)
Power:	41.6 HP (31.1 kW)

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)



AGCO RT 100A Diesel

Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln

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

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