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Test 1904: AGCO RT 120A POWRMAXX Diesel

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NEBRASKA OECD TRACTOR TEST 1904 - SUMMARY 570
AGCO RT 120A 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
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1081 rpm)					
122.71 *(91.50)*	2199	7.89 *(29.87)*	0.450 *(0.274)*	15.55 *(3.06)*	
Standard Power Take-off Speed(1000 rpm)					
127.62 *(95.16)*	2034	7.55 *(28.57)*	0.414 *(0.252)*	16.91 *(3.33)*	
Maximum Power (1 hour)					
130.20 *(97.09)*	1850	7.24 *(27.41)*	0.389 *(0.237)*	17.98 *(3.54)*	
VARYING POWER AND FUEL CONSUMPTION					
122.71 *(91.50)*	2199	7.89 *(29.87)*	0.450 *(0.274)*	15.55 *(3.06)*	Air temperature
105.14 *(78.40)*	2212	7.01 *(26.55)*	0.467 *(0.284)*	14.99 *(2.95)*	77°F *(25°C)*
78.92 *(58.85)*	2223	5.70 *(21.58)*	0.506 *(0.308)*	13.85 *(2.73)*	Relative humidity
52.89 *(39.44)*	2233	4.44 *(16.82)*	0.588 *(0.358)*	11.90 *(2.35)*	59%
26.72 *(19.93)*	2244	3.29 *(12.44)*	0.861 *(0.524)*	8.13 *(1.60)*	Barometer
1.37 *(1.02)*	2253	2.14 *(8.11)*	10.949 *(6.660)*	0.64 *(0.13)*	28.75" Hg *(97.36 kPa)*

Maximum torque - 409 lb.-ft. *(554 Nm)* at 1200 rpm
Maximum torque rise - 39.5%
Torque rise at 1800 engine rpm - 29%
Power increase at 1850 rpm - 6.1%

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—5.0 mph*(8.0 km/h)*									
101.24 *(75.50)*	7882 *(35.06)*	4.82 *(7.75)*	2199	2.13	0.540 *(0.329)*	12.96 *(2.55)*	182 *(84)*	62 *(17)*	29.06 *(98.41)*
75% of Pull at Maximum Power—5.0 mph*(8.0 km/h)*									
76.18 *(56.81)*	5932 *(26.39)*	4.82 *(7.75)*	2215	1.48	0.588 *(0.358)*	11.91 *(2.35)*	182 *(83)*	69 *(21)*	29.04 *(98.34)*
50% of Pull at Maximum Power—5.0 mph*(8.0 km/h)*									
51.61 *(38.48)*	3962 *(17.62)*	4.89 *(7.86)*	2226	0.78	0.690 *(0.420)*	10.14 *(2.00)*	182 *(83)*	69 *(21)*	29.04 *(98.34)*
75% of Pull at Reduced Engine Speed—6.1 mph*(9.8 km/h)*									
76.14 *(56.78)*	5951 *(26.47)*	4.80 *(7.72)*	1759	1.44	0.483 *(0.294)*	14.50 *(2.86)*	187 *(86)*	70 *(21)*	29.02 *(98.27)*
50% of Pull at Reduced Engine Speed—7.6 mph*(12.0 km/h)*									
51.17 *(38.16)*	3959 *(17.61)*	4.85 *(7.80)*	1414	0.76	0.500 *(0.304)*	13.99 *(2.76)*	185 *(85)*	69 *(21)*	29.03 *(98.31)*

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

Dates of tests: May 23-29, 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** 22.0 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 heatexchanger 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: 53.9 - 56.6 lb/h *(24.4 -25.7 kg/h)* **High idle:** 2225-2275 rpm **Turbo boost:** nominal 13.8 - 15.2 psi *(95 - 105 kPa)* as measured 14.3 psi *(99 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 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)*
					2.5 mph*(4.0 km/h)*				
91.07 *(67.91)*	15050 *(66.95)*	2.27 *(3.65)*	2207	12.28	0.582 *(0.354)*	12.03 *(2.37)*	181 *(83)*	52 *(11)*	29.06 *(98.41)*
					3.1 mph*(5.0 km/h)*				
99.08 *(73.88)*	13591 *(60.46)*	2.73 *(4.40)*	2156	8.99	0.558 *(0.339)*	12.55 *(2.47)*	183 *(84)*	68 *(20)*	29.05 *(98.37)*
					3.7 mph*(6.0 km/h)*				
105.63 *(78.77)*	13066 *(58.12)*	3.03 *(4.88)*	1968	7.06	0.494 *(0.301)*	14.17 *(2.79)*	185 *(85)*	69 *(21)*	29.04 *(98.34)*
					4.3 mph*(7.0 km/h)*				
110.03 *(82.05)*	11966 *(53.23)*	3.45 *(5.55)*	1853	5.37	0.464 *(0.282)*	15.10 *(2.97)*	186 *(85)*	63 *(17)*	29.06 *(98.41)*
					5.0 mph*(8.0 km/h)*				
110.70 *(82.55)*	10377 *(46.16)*	4.00 *(6.44)*	1856	3.55	0.462 *(0.281)*	15.16 *(2.99)*	186 *(85)*	61 *(16)*	29.06 *(98.41)*
					5.6 mph*(9.0 km/h)*				
110.26 *(82.22)*	9134 *(40.63)*	4.53 *(7.29)*	1856	2.74	0.462 *(0.281)*	15.16 *(2.99)*	185 *(85)*	58 *(14)*	29.06 *(98.41)*
					6.2 mph*(10.0 km/h)*				
110.07 *(82.08)*	8233 *(36.62)*	5.01 *(8.07)*	1853	2.29	0.462 *(0.281)*	15.15 *(2.98)*	185 *(85)*	63 *(17)*	29.06 *(98.41)*
					6.8 mph*(11.0 km/h)*				
109.07 *(81.33)*	7329 *(32.60)*	5.58 *(8.98)*	1854	2.10	0.465 *(0.283)*	15.04 *(2.96)*	186 *(86)*	64 *(18)*	29.06 *(98.41)*
					7.5 mph*(12.0 km/h)*				
108.40 *(80.84)*	6660 *(29.62)*	6.10 *(9.82)*	1851	1.68	0.470 *(0.286)*	14.90 *(2.94)*	186 *(86)*	65 *(18)*	29.06 *(98.41)*
					8.1 mph*(13.0 km/h)*				
107.33 *(80.03)*	6050 *(26.91)*	6.65 *(10.71)*	1850	1.48	0.475 *(0.289)*	14.74 *(2.90)*	187 *(86)*	66 *(19)*	29.06 *(98.41)*
					8.7 mph*(14.0 km/h)*				
104.21 *(77.71)*	5465 *(24.31)*	7.15 *(11.51)*	1869	1.26	0.486 *(0.295)*	14.41 *(2.84)*	187 *(86)*	67 *(19)*	29.06 *(98.41)*
					9.3 mph*(15.0 km/h)*				
105.46 *(78.64)*	5248 *(23.34)*	7.54 *(12.13)*	1854	1.16	0.483 *(0.294)*	14.48 *(2.85)*	187 *(86)*	68 *(20)*	29.05 *(98.37)*

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	--	83.8

TIRES, BALLAST AND WEIGHT	Tested without ballast
Rear Tires - No., size, ply & psi*(kPa)*	Two 520/85R38;**;12*(85)*
Front Tires - No., size, ply & psi*(kPa)*	Two 380/85R30;**;12*(85)*
Height of Drawbar	17.0 in *(430 mm)*
Static Weight with operator - Rear	9885 lb *(4484 kg)*
- Front	5390 lb *(2445 kg)*
- Total	15275 lb *(6929 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

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 147°F *(64°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. **1904,** Nebraska Summary 570, July 2, 2007.

Roger M. Hoy
Director

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

THREE POINT HITCH PERFORMANCE (OECD Static Test)

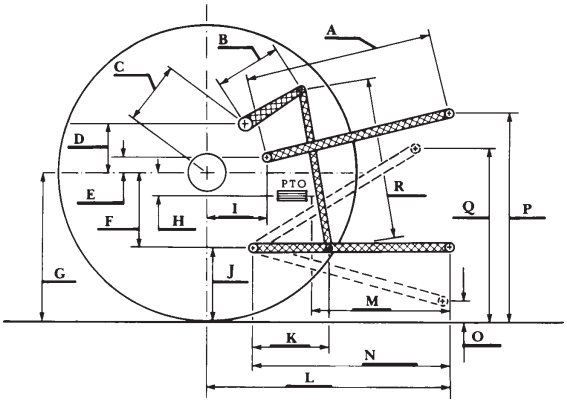
CATEGORY: II	
Quick Attach: None	
Maximum force exerted through whole range:	10915 lbs *(48.55 kN)* CVT Transmission
	8923 lbs *(39.7 kN)* Quadrashift Transmission
i) Opening pressure of relief valve:	NA
Sustained pressure of the open relief valve:	2864 psi *(197 bar)*
ii) Pump delivery rate at minimum 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)*



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*

AGCO RT 120A Diesel

Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln