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January 2004

Nebraska Summary 446: AGCO RT135 PowerMaxx Diesel

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1842 - SUMMARY 446

AGCO RT135 POWERMAXX 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)					
137.72 (102.69)	2200	9.45 (35.76)	0.481 (0.293)	14.58 (2.87)	
Standard Power Take-off Speed (1000 rpm)					
142.03 (105.91)	2033	9.17 (34.72)	0.453 (0.275)	15.48 (3.05)	
Maximum Power (2 Hours)					
143.94 (107.34)	1800	8.62 (32.62)	0.420 (0.255)	16.70 (3.29)	
VARYING POWER AND FUEL CONSUMPTION					
137.72 (102.69)	2200	9.44 (35.73)	0.481 (0.293)	14.58 (2.87)	Air temperature
123.18 (91.85)	2315	9.03 (34.18)	0.514 (0.313)	13.64 (2.69)	76°F (24°C)
92.65 (69.09)	2327	7.57 (28.67)	0.573 (0.349)	12.23 (2.41)	Relative humidity
62.78 (46.82)	2352	6.12 (23.16)	0.683 (0.416)	10.26 (2.02)	66%
31.80 (23.71)	2383	4.54 (17.17)	1.000 (0.608)	7.01 (1.38)	Barometer
1.19 (0.89)	2430	3.04 (11.50)	17.831 (10.846)	0.39 (0.08)	29.02" Hg (98.27 kPa)
Maximum Torque - 531 lb.-ft. (719 Nm) at 1149 rpm					
Maximum Torque Rise - 61.2%					
Torque rise at 1749 engine rpm - 32%					

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—5.6 mph (9.0 km/h)									
108.36 (80.80)	7261 (32.30)	5.60 (9.01)	2193	5.15	0.614 (0.374)	11.41 (2.25)	185 (85)	62 (17)	28.95 (98.04)
75% of Pull at Maximum Power—5.6 mph (9.0 km/h)									
87.07 (64.93)	5443 (24.21)	6.00 (9.65)	2312	3.92	0.688 (0.418)	10.19 (2.01)	184 (84)	62 (17)	28.94 (98.00)
50% of Pull at Maximum Power—5.6 mph (9.0 km/h)									
59.34 (44.25)	3626 (16.13)	6.14 (9.87)	2324	2.69	0.836 (0.509)	8.38 (1.65)	183 (84)	61 (16)	28.94 (98.00)
75% of Pull at Reduced Engine Speed—7.6 mph (12.0 km/h)									
87.48 (65.23)	5489 (24.42)	5.98 (9.62)	1756	3.92	0.545 (0.332)	12.86 (2.53)	183 (84)	61 (16)	28.94 (98.00)
50% of Pull at Reduced Engine Speed—7.6 mph (12.0 km/h)									
59.32 (44.24)	3630 (16.15)	6.13 (9.86)	1785	2.71	0.611 (0.372)	11.47 (2.26)	183 (84)	60 (16)	28.93 (97.97)

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

Dates of Test: October 7-26, 2004

Manufacturer: AGCO Corporation, 4205 River Green Parkway, Duluth, Georgia, 30096 USA.

FUEL, OIL and TIME: Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8420 Fuel weight 7.011 lbs/gal (0.840 kg/l) Oil SAE 15W40 API service classification CE/CF-4 /CD-II Transmission and hydraulic lubricant AGCO Power Fluid 821 XL fluid Front axle lubricant AGCO Gear Lube 715 SAE 80W90 Total time engine was operated 40.5 hours

ENGINE: Make Cummins Diesel Type six cylinder vertical with turbocharger and air to air intercooler Serial No. 21600812 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 two paper elements and water separator Muffler vertical Cooling medium temperature control one thermostat and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 62.9 - 69.3 lb/h (28.5 - 31.4 kg/h) High idle: 2400-2500 rpm Turbo boost: nominal 16.6 - 20.1 psi (114 - 138 kPa) as measured 18.3 psi (126 kPa)

CHASSIS: Type front wheel assist Serial No. N132062 Tread width rear 60.5" (1537 mm) to 120.0" (3048 mm) front 61.2" (1554 mm) to 89.2" (2265 mm) Wheelbase 113.8" (2891 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 wet multiple disc hydraulically actuated by two foot pedals which 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 15525 lb (7042 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)
106.30 (79.27)	13536 (60.21)	2.95 (4.74)	2165	14.04	3.1 mph(5.0 km/h) 0.632 (0.384)	11.10 (2.19)	185 (85)	50 (10)	28.82 (97.60)
112.07 (83.57)	12498 (55.59)	3.36 (5.41)	2069	11.03	3.7 mph(6.0 km/h) 0.588 (0.358)	11.92 (2.35)	185 (85)	51 (11)	28.82 (97.60)
114.65 (85.49)	11792 (52.45)	3.65 (5.87)	1944	9.73	4.3 mph(7.0 km/h) 0.554 (0.337)	12.65 (2.49)	185 (85)	52 (11)	28.82 (97.60)
115.13 (85.85)	11388 (50.66)	3.79 (6.10)	1844	9.30	4.7 mph(7.5 km/h) 0.537 (0.327)	13.05 (2.57)	185 (85)	54 (12)	28.82 (97.60)
115.17 (85.88)	10931 (48.62)	3.95 (6.36)	1801	8.68	5.0 mph(8.0 km/h) 0.529 (0.322)	13.25 (2.61)	185 (85)	55 (13)	28.82 (97.60)
116.37 (86.77)	9685 (43.08)	4.51 (7.25)	1796	6.79	5.6 mph(9.0 km/h) 0.525 (0.320)	13.34 (2.63)	185 (85)	55 (13)	28.98 (98.14)
116.31 (86.73)	8809 (39.18)	4.95 (7.97)	1806	6.13	6.2 mph(10.0 km/h) 0.529 (0.322)	13.26 (2.61)	185 (85)	60 (16)	29.00 (98.21)
115.41 (86.06)	8010 (35.63)	5.40 (8.70)	1791	5.57	6.8 mph(11.0 km/h) 0.527 (0.320)	13.31 (2.62)	185 (85)	61 (16)	29.00 (98.21)
113.87 (84.91)	7082 (31.50)	6.03 (9.70)	1796	4.89	7.5 mph(12.0 km/h) 0.534 (0.325)	13.12 (2.58)	185 (85)	62 (17)	29.00 (98.21)
113.20 (84.41)	6435 (28.62)	6.60 (10.62)	1799	4.39	8.1 mph(13.0 km/h) 0.539 (0.328)	13.01 (2.56)	185 (85)	63 (17)	29.00 (98.21)
112.23 (83.69)	5858 (26.06)	7.19 (11.56)	1793	4.00	8.7 mph(14.0 km/h) 0.541 (0.329)	12.95 (2.55)	185 (85)	64 (18)	29.00 (98.21)
111.63 (83.24)	5498 (24.46)	7.61 (12.25)	1789	3.75	9.3 mph(15.0 km/h) 0.544 (0.331)	12.89 (2.54)	185 (85)	66 (19)	29.00 (98.21)
110.37 (82.30)	5089 (22.64)	8.13 (13.09)	1789	3.42	9.9 mph(16.0 km/h) 0.553 (0.336)	12.68 (2.50)	185 (85)	68 (20)	29.00 (98.21)

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 143°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. **1842**, Nebraska Summary 446, February 4, 2005.

Leonard L. Bashford
Director

M.F. Kocher
V.I. Adamchuk
W.P. Campbell
Board of Tractor Test Engineers

TIRES, BALLAST AND WEIGHT

Rear tires - No., size, ply & psi(kPa)

Ballast - Duals(total)

- Test equip.(total)

Front tires - No., size, ply & psi(kPa)

Ballast - Liquid(total)

- Cast Iron(total)

Height of Drawbar

Static Weight with operator- Rear

- Front

- Total

With Ballast

Four 480/80R42; **,10 (70)

1770 lb (803 kg)

120 lb (54 kg)

Two 380/85R30; **,19 (130)

None

985 lb (447 kg)

19.0 in (485 mm)

11315 lb (5132 kg)

7260 lb (3293 kg)

18575 lb (8425 kg)

Without Ballast

Two 480/80R42; **,16 (110)

None

None

Two 380/85R30; **,19 (130)

None

None

18.5 in (470 mm)

9640 lb (4372 kg)

6060 lb (2749 kg)

15700 lb (7121 kg)

DRAWBAR PERFORMANCE
BALLASTED - FRONT DRIVE DISENGAGED
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—5.0mph(8.0 km/h)									
110.84 (82.65)	8390 (37.32)	4.95 (7.97)	2204	5.81	0.597 (0.363)	11.74 (2.31)	185 (85)	56 (13)	28.60 (96.85)
75% of Pull at Maximum Power—5.0mph(8.0 km/h)									
89.49 (66.74)	6284 (27.95)	5.34 (8.59)	2309	3.80	0.665 (0.405)	10.54 (2.08)	183 (84)	55 (13)	28.48 (96.44)
50% of Pull at Maximum Power—5.0mph(8.0 km/h)									
61.29 (45.70)	4201 (18.69)	5.47 (8.80)	2328	2.67	0.792 (0.482)	8.85 (1.74)	182 (83)	55 (13)	28.48 (96.44)
75% of Pull at Reduced Engine Speed—6.8mph(11.0 km/h)									
89.58 (66.80)	6286 (27.96)	5.34 (8.60)	1712	3.71	0.526 (0.320)	13.32 (2.62)	182 (83)	56 (13)	28.48 (96.44)
50% of Pull at Reduced Engine Speed—6.8mph(11.0 km/h)									
61.35 (45.75)	4186 (18.62)	5.50 (8.84)	1732	2.60	0.587 (0.357)	11.95 (2.35)	180 (82)	57 (14)	28.48 (96.44)
MAXIMUM POWER AT SELECTED TRAVEL SPEEDS									
106.32 (79.28)	12575 (55.94)	3.17 (5.10)	2195	3.4mph(5.5 km/h) 12.51 0.622 (0.379)		11.26 (2.22)	185 (85)	51 (11)	28.48 (96.44)
109.75 (81.84)	9637 (42.87)	4.27 (6.87)	2200	4.3mph(7.0 km/h) 7.31 0.606 (0.369)		11.56 (2.28)	185 (85)	53 (12)	28.48 (96.44)
109.16 (81.40)	8749 (38.92)	4.68 (7.53)	2205	4.7mph(7.5 km/h) 6.05 0.607 (0.369)		11.56 (2.28)	185 (85)	57 (14)	28.60 (96.85)
110.84 (82.65)	8390 (37.32)	4.95 (7.97)	2204	5.0mph(8.0 km/h) 5.81 0.597 (0.363)		11.74 (2.31)	185 (85)	56 (13)	28.60 (96.85)
108.98 (81.27)	7320 (32.56)	5.58 (8.98)	2204	5.6mph(9.0 km/h) 4.47 0.604 (0.367)		11.61 (2.29)	185 (85)	52 (11)	28.59 (96.82)
108.42 (80.85)	6557 (29.16)	6.20 (9.98)	2200	6.2mph(10.0 km/h) 3.97 0.611 (0.372)		11.48 (2.26)	184 (85)	53 (12)	28.59 (96.82)
107.59 (80.23)	5940 (26.42)	6.79 (10.93)	2202	6.8mph(11.0 km/h) 3.61 0.614 (0.373)		11.42 (2.25)	184 (85)	53 (12)	28.59 (96.82)
107.31 (80.02)	5376 (23.91)	7.49 (12.05)	2200	7.5mph(12.0 km/h) 3.26 0.616 (0.374)		11.39 (2.24)	184 (84)	54 (12)	28.59 (96.82)
106.20 (79.19)	4939 (21.97)	8.06 (12.98)	2201	8.1mph(13.0 km/h) 2.98 0.627 (0.381)		11.19 (2.20)	185 (85)	54 (12)	28.59 (96.82)

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 - 2410 rpm)	73.8	73.7
At no load at 4.7 mph (7.5 km/h)(engine - 1400 rpm)	66.8	66.6
Bystander	--	--

DRAWBAR PERFORMANCE
BALLASTED - 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)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
2.5 mph(4.0 km/h)									
104.49 (77.91)	17663 (78.57)	2.22 (3.57)	2199	13.78	0.637 (0.387)	11.01 (2.17)	185 (85)	50 (10)	28.48 (96.44)
3.1 mph(5.0 km/h)									
113.38 (84.55)	15462 (68.78)	2.75 (4.43)	2001	9.47	0.564 (0.343)	12.44 (2.45)	185 (85)	51 (11)	28.48 (96.44)
3.4 mph(5.5 km/h)									
114.71 (85.54)	14845 (66.03)	2.90 (4.66)	1935	7.70	0.552 (0.336)	12.69 (2.50)	185 (85)	52 (11)	28.48 (96.44)
4.3 mph(7.0 km/h)									
116.43 (86.82)	11958 (53.19)	3.65 (5.88)	1860	5.74	0.529 (0.322)	13.26 (2.61)	185 (85)	53 (12)	28.48 (96.44)
4.7 mph(7.5 km/h)									
116.29 (86.71)	11298 (50.25)	3.86 (6.21)	1810	5.31	0.523 (0.318)	13.41 (2.64)	185 (85)	56 (13)	28.60 (96.85)
5.0 mph(8.0 km/h)									
116.87 (87.15)	10762 (47.87)	4.07 (6.55)	1802	5.04	0.519 (0.316)	13.50 (2.66)	185 (85)	55 (13)	28.60 (96.85)
5.6 mph(9.0 km/h)									
115.08 (85.82)	9364 (41.65)	4.61 (7.42)	1807	4.39	0.525 (0.319)	13.37 (2.63)	184 (85)	52 (11)	28.59 (96.82)
6.2 mph(10.0 km/h)									
114.07 (85.06)	8391 (37.32)	5.10 (8.20)	1802	3.92	0.529 (0.322)	13.25 (2.61)	185 (85)	53 (12)	28.59 (96.82)
6.8 mph(11.0 km/h)									
113.85 (84.90)	7662 (34.08)	5.57 (8.97)	1807	3.62	0.528 (0.321)	13.28 (2.62)	185 (85)	54 (12)	28.59 (96.82)
7.5 mph(12.0 km/h)									
113.05 (84.30)	6904 (30.71)	6.14 (9.88)	1799	3.26	0.536 (0.326)	13.07 (2.57)	185 (85)	54 (12)	28.59 (96.82)
8.1 mph(13.0 km/h)									
111.52 (83.16)	6343 (28.22)	6.59 (10.61)	1801	2.97	0.544 (0.331)	12.89 (2.54)	185 (85)	55 (13)	28.59 (96.82)
8.7 mph(14.0 km/h)									
110.27 (82.23)	5827 (25.92)	7.10 (11.42)	1805	2.81	0.548 (0.333)	12.81 (2.52)	185 (85)	55 (13)	28.59 (96.82)
9.3 mph(15.0 km/h)									
108.83 (81.15)	5371 (23.89)	7.60 (12.23)	1801	2.59	0.554 (0.337)	12.66 (2.49)	185 (85)	56 (13)	28.59 (96.82)
9.9 mph(16.0 km/h)									
107.31 (80.02)	4927 (21.92)	8.17 (13.14)	1799	2.36	0.563 (0.343)	12.45 (2.45)	185 (85)	56 (13)	28.60 (96.85)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: None

Maximum Force Exerted

Through Whole Range:

PowerMaxx CVT QuadraShift transmission
14283 lbs (63.5 kN) 15240 lbs (67.8 kN)

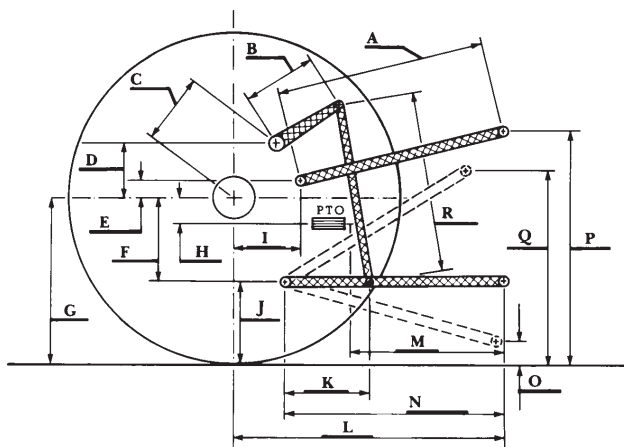
- i) Opening pressure of relief valve: NA
Sustained pressure of the open relief valve: 2928 psi (202 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed: 30.6 GPM (115.8 l/min)
iii) Pump delivery rate at maximum hydraulic power: 29.2 GPM (110.5 l/min)
Delivery pressure: 2748 psi (190 bar)
Power: 46.8 HP (34.9 kW)

THREE POINT HITCH PERFORMANCE (Powermaxx transmission)

Observed Maximum Pressure psi. (bar) 2850 (197)
Location: lift cylinder
Hydraulic oil temperature: °F (°C) 148 (64)
Location: hydraulic sump
Category: III
Quick attach: None

SAE Static Test—System pressure 2665 psi (177 Bar)

Hitch point distance to ground level in. (mm) 8.2 (208) 14.4 (366) 20.8 (528) 27.2 (691) 33.6 (853) 40.0 (1016)
Lift force on frame lb 19719 17748 17721 18009 17874 16992
" " " " " " (kN) (87.7) (78.9) (78.8) (79.5) (79.5) (75.6)



HITCH DIMENSIONS AS TESTED - NO LOAD POWERMAXX CVT

	SAE TEST		OECD TEST	
	inch	mm	inch	mm
A	30.3	768	29.7	754
B	14.0	355	14.0	355
C	13.7	347	13.7	347
D	12.0	305	12.0	305
E	12.6	321	12.6	321
F	10.0	255	10.0	255
G	34.2	870	34.2	870
H	2.4	60	2.4	60
I	18.7	476	18.7	476
J	24.2	615	24.2	615
K	27.2	690	27.2	690
L	46.3	1175	46.3	1175
M	26.2	665	26.2	665
N	40.6	1030	40.6	1030
O	8.0	203	9.0	230
P	46.2	1173	51.2	1300
Q	37.3	947	39.5	1003
R	29.9	759	29.3	744

HITCH DIMENSIONS AS TESTED—NO LOAD QUADRASHIFT TRANSMISSION

	inch	mm
A	31.5	800
B	15.7	400
C	21.0	534
D	19.5	495
E	8.3	210
F	12.2	310
G	35.6	905
H	2.0	50
I	17.7	450
J	23.4	595
K	25.0	635
L	47.2	1198
M	23.5	598
N	37.0	940
O	10.2	258
P	47.4	1205
Q	40.2	1022
R	36.3	923



AGCO RT 135 Diesel