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January 1998

Test 1753: White 8410 Diesel 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1753—SUMMARY 271

WHITE 8410 DIESEL

18 SPEED

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—1052 rpm)					
146.21 (109.03)	2200	8.63 (32.67)	0.418 (0.254)	16.95 (3.34)	
Standard Power Take-off speed (1000 rpm)					
153.34 (114.35)	2091	8.75 (33.12)	0.404 (0.246)	17.52 (3.45)	
Maximum Power (2 hours)					
155.91 (116.26)	1900	8.57 (32.44)	0.389 (0.237)	18.19 (3.58)	

VARYING POWER AND FUEL CONSUMPTION

146.21 (109.03)	2200	8.63 (32.67)	0.418 (0.254)	16.95 (3.34)	Air temperature
127.26 (94.90)	2255	7.84 (29.66)	0.436 (0.265)	16.24 (3.20)	
97.48 (72.69)	2301	6.52 (24.70)	0.474 (0.288)	14.94 (2.94)	Relative humidity
66.04 (49.25)	2343	5.17 (19.56)	0.554 (0.337)	12.78 (2.52)	
33.74 (25.16)	2381	3.86 (14.60)	0.809 (0.492)	8.75 (1.72)	Barometer
0.57 (0.43)	2428	2.50 (9.46)	30.796 (18.733)	0.23 (0.05)	

Maximum Torque 478 lb.-ft. (649 Nm) at 1549rpm

Maximum Torque Rise 37.3%

Torque rise at 1796 engine rpm 28%

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—10th Gear									
127.52 (95.09)	8212 (36.53)	5.82 (9.37)	2197	4.10	0.477 (0.290)	14.83 (2.92)	182 (83)	67 (19)	29.02 (98.27)
75% of Pull at Maximum Power—10th Gear									
100.05 (74.61)	6147 (27.34)	6.10 (9.82)	2275	2.99	0.508 (0.309)	13.95 (2.75)	181 (83)	72 (22)	28.98 (98.14)
50% of Pull at Maximum Power—10th Gear									
68.95 (51.42)	4106 (18.26)	6.30 (10.14)	2323	1.92	0.588 (0.358)	12.04 (2.37)	180 (82)	72 (22)	28.98 (98.14)
75% of Pull at Reduced Engine Speed—12th Gear									
100.06 (74.61)	6170 (22.44)	6.08 (9.79)	1757	2.99	0.462 (0.281)	15.35 (3.02)	178 (81)	72 (22)	28.98 (98.14)
50% of Pull at Reduced Engine Speed—12th Gear									
68.88 (51.36)	4110 (18.28)	6.29 (10.11)	1798	2.01	0.514 (0.312)	13.79 (2.72)	176 (80)	72 (22)	28.98 (98.14)

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

Dates of Test: September 22-October 8, 1998

Manufacturer: AGCO Corporation, Duluth, Georgia 30096

FUEL OIL AND TIME: Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8506 Fuel weight 7.082 lbs/gal (0.849 kg/l) Oil SAE 15W-40 API service classification CF-4/CE/CD-II Transmission and hydraulic lubricant AGCO Power Fluid 821XL Front axle lubricant AGCO Gear Lube 715 SAE 80W90 Total time engine was operated 33.0 hours.

ENGINE: Make Cummins Diesel Type six cylinder vertical with turbocharger and intercooler Serial No. 21317928 Crankshaft lengthwise Rated engine speed 2200 Bore and stroke 4.016" × 4.72" (102.0 mm × 120.0 mm) Compression ratio 17.4 to 1 Displacement 359 cu in (5880 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 two thermostats and variable speed fan.

ENGINE OPERATING PARAMETERS: fuel rate: 61.1-67.5 lb/h (27.7-30.6 kg/h) high idle: 2350-2450 rpm Turbo boost nominal 19.0-22.0 psi (131-152 kPa) as measured 21.2 psi (146 kPa)

CHASSIS: Type front wheel assist Serial No. G 181008 Tread width rear 62.1" (1577 mm) to 107.6" (2734 mm) front 60.3" (1532 mm) to 88.3" (2244 mm) Wheel base 108.3" (2750 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with full range operator controlled powershift Nominal travel speeds mph (km/h) first 1.44 (2.31) second 1.86 (3.00) third 2.40 (3.86) fourth 2.73 (4.39) fifth 3.10 (4.99) sixth 3.53 (5.68) seventh 3.99 (6.42) eighth 4.55 (7.32) ninth 5.16 (8.30) tenth 5.88 (9.47) eleventh 6.67 (10.73) twelfth 7.60 (12.23) thirteenth 8.60 (13.84) fourteenth 9.82 (15.80) fifteenth 11.10 (17.86) sixteenth 14.37 (23.13) seventeenth 18.54 (29.84) eighteenth 23.97 (38.57) reverse 1.44 (2.32), 2.40 (3.86), 2.74 (4.40), 3.98 (6.41), 4.55 (7.33), 6.66 (10.72) Clutch multiple wet disc electro-hydraulically actuated by foot pedal Brakes wet multiple disc hydraulically actuated by two foot pedals which can be locked together Steering hydrostatic Power take-off 540 rpm at 1993 engine rpm or 1000 rpm at 2091 engine rpm Unladen tractor mass 16715 lb (7582 kg).

DRAWBAR PERFORMANCE (Unballasted—Front Drive Engaged)
MAXIMUM POWER IN SELECTED GEARS

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)	
5th Gear									
111.07 (82.83)	15069 (67.03)	2.76 (4.45)	2228	14.82	0.535 (0.325)	13.24 (2.61)	179 (82)	61 (16)	29.07 (98.44)
6th Gear									
122.87 (91.63)	14283 (63.53)	3.23 (5.19)	2200	11.47	0.499 (0.304)	14.19 (2.80)	182 (83)	63 (17)	29.06 (98.41)
7th Gear									
128.63 (95.92)	13886 (61.77)	3.47 (5.59)	2069	10.75	0.486 (0.296)	14.56 (2.87)	184 (84)	64 (18)	29.05 (98.37)
8th Gear									
133.22 (99.34)	13765 (61.23)	3.63 (5.84)	1899	10.67	0.470 (0.286)	15.06 (2.97)	184 (84)	64 (18)	29.04 (98.34)
9th Gear									
137.33 (102.41)	12043 (53.57)	4.28 (6.88)	1900	7.22	0.455 (0.277)	15.55 (3.06)	183 (84)	65 (18)	29.03 (98.31)
10th Gear									
139.28 (103.86)	10555 (46.95)	4.95 (7.96)	1900	5.77	0.448 (0.273)	15.80 (3.11)	181 (83)	66 (19)	29.02 (98.27)
11th Gear									
138.31 (103.14)	9148 (40.69)	5.67 (9.12)	1901	4.60	0.450 (0.274)	15.73 (3.10)	184 (84)	66 (19)	29.02 (98.27)
12th Gear									
139.90 (104.32)	8068 (35.89)	6.50 (10.47)	1899	4.01	0.447 (0.272)	15.85 (3.12)	183 (84)	68 (20)	29.01 (98.24)
13th Gear									
139.41 (103.96)	7064 (31.42)	7.40 (11.91)	1895	3.41	0.449 (0.273)	15.79 (3.11)	183 (84)	68 (20)	29.01 (98.24)
14th Gear									
137.23 (102.34)	6063 (26.97)	8.49 (13.66)	1897	2.89	0.454 (0.276)	15.60 (3.07)	186 (86)	68 (20)	29.01 (98.24)

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 150° F (65° C). The pull in 4th gear (ballasted tractor) was limited to avoid excessive tractor bouncing. The performance results on this summary were taken from OECD tests conducted under the Code II test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor No. **1753**, Summary 271, November 24, 1998.

LEONARD L. BASHFORD
 Director

M.F. KOCHER
 R.D. GRISSE
 G.J. HOFFMAN
 Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
At 75% load in 8th Gear	76.1	76.9
Bystander		

TIRES, BALLAST AND WEIGHT		
Rear Tires —No., size, ply & psi (kPa)	With Ballast	Without Ballast
Ballast —Duals (total)	Four 18.4R42; ***; 12(85)	Two 18.4R42;***;20(140)
—Test Equip (total)	1720 lb (780 kg)	None
Front Tires —No., size, ply & psi (kPa)	180 lb (82 kg)	None
Ballast —Liquid (total)	Two 14.9R30; ***; 22(150)	Two 14.9R30;***;22(150)
—Test Equip (total)	None	None
Height of Drawbar	70 lb (32 kg)	None
Static Weight with Operator	20.0 in (510 mm)	19.5 in (495 mm)
Rear	12710 lb (5765 kg)	10810 lb (4903 kg)
—Front	6150 lb (2790 kg)	6080 lb (2758 kg)
Total	18860 lb (8555 kg)	16890 lb (7661 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		Temp. °F (°C)		Barom. inch Hg (kPa)
					lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	cool- ing med	Air dry bulb	
Maximum Power—10th Gear									
127.29 (94.92)	8261 (36.75)	5.78 (9.30)	2197	3.85	0.475 (0.289)	14.92 (2.94)	182 (83)	58 (14)	28.68 (97.12)
75% of Pull at Maximum Power—10th Gear									
99.72 (74.36)	6197 (27.57)	6.03 (9.71)	2274	3.08	0.508 (0.309)	13.94 (2.75)	181 (83)	64 (18)	28.72 (97.26)
50% of Pull at Maximum Power—10th Gear									
68.41 (51.01)	4127 (18.36)	6.22 (10.01)	2325	2.22	0.595 (0.362)	11.90 (2.34)	180 (82)	64 (18)	28.72 (97.26)
75% of Pull at Reduced Engine Speed—12th Gear									
99.53 (74.22)	6215 (27.64)	6.01 (9.67)	1754	3.00	0.465 (0.283)	15.22 (3.00)	177 (80)	64 (18)	28.72 (97.26)
50% of Pull at Reduced Engine Speed—12th Gear									
68.45 (51.04)	4133 (18.38)	6.21 (10.00)	1800	2.39	0.513 (0.312)	13.81 (2.72)	177 (81)	64 (18)	28.72 (97.26)

MAXIMUM POWER IN SELECTED GEARS

5th Gear									
110.92 (82.71)	15213 (67.67)	2.73 (4.40)	2223	14.73	0.532 (0.324)	13.30 (2.62)	180 (82)	51 (11)	28.67 (97.09)
6th Gear									
125.26 (93.41)	14499 (64.49)	3.24 (5.21)	2185	9.81	0.488 (0.297)	14.53 (2.86)	181 (83)	52 (11)	28.68 (97.12)
7th Gear									
130.06 (96.98)	14038 (62.44)	3.47 (5.59)	2041	8.52	0.471 (0.287)	15.03 (2.96)	183 (84)	52 (11)	28.68 (97.12)
8th Gear									
134.48 (100.28)	13648 (60.71)	3.69 (5.95)	1900	8.30	0.456 (0.277)	15.55 (3.06)	185 (85)	57 (14)	28.68 (97.12)
9th Gear									
136.46 (101.76)	11973 (53.26)	4.27 (6.88)	1895	6.16	0.448 (0.273)	15.80 (3.11)	184 (84)	58 (14)	28.68 (97.12)
10th Gear									
139.37 (103.93)	10609 (47.19)	4.93 (7.93)	1897	5.02	0.444 (0.270)	15.94 (3.14)	183 (84)	60 (16)	28.69 (97.16)
11th Gear									
137.23 (102.33)	9156 (40.73)	5.62 (9.05)	1897	4.52	0.450 (0.274)	15.74 (3.10)	184 (84)	61 (16)	28.68 (97.12)
12th Gear									
138.93 (103.60)	8077 (35.93)	6.45 (10.38)	1900	3.85	0.444 (0.270)	15.96 (3.14)	184 (84)	61 (16)	28.68 (97.12)
13th Gear									
138.00 (102.91)	7048 (31.35)	7.34 (11.82)	1899	3.34	0.450 (0.273)	15.75 (3.10)	184 (84)	61 (16)	28.69 (97.16)
14th Gear									
133.74 (99.73)	5966 (26.54)	8.41 (13.53)	1898	2.83	0.458 (0.279)	15.46 (3.05)	184 (84)	63 (17)	28.71 (97.22)

DRAWBAR PERFORMANCE(Ballasted—Front Drive Engaged)
MAXIMUM POWER IN SELECTED GEARS

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)
4th Gear									
121.47 (90.58)	18036 (80.23)	2.53 (4.06)	2205	10.19	0.498 (0.303)	14.21 (2.80)	179 (82)	51 (11)	28.66 (97.05)
5th Gear									
126.22 (94.12)	16898 (75.17)	2.80 (4.51)	2126	9.14	0.485 (0.295)	14.60 (2.88)	182 (83)	55 (13)	28.68 (97.12)
6th Gear									
131.66 (98.18)	16625 (73.95)	2.97 (4.78)	1963	8.37	0.461 (0.280)	15.37 (3.03)	184 (84)	54 (12)	28.68 (97.12)
7th Gear									
137.21 (102.32)	15572 (69.27)	3.30 (5.32)	1900	7.12	0.449 (0.273)	15.78 (3.11)	185 (85)	53 (12)	28.68 (97.12)
8th Gear									
137.83 (102.78)	13521 (60.14)	3.82 (6.15)	1903	5.65	0.447 (0.272)	15.86 (3.12)	185 (85)	56 (13)	28.68 (97.12)
9th Gear									
138.37 (103.18)	11866 (52.78)	4.37 (7.04)	1902	4.69	0.442 (0.269)	16.02 (3.15)	183 (84)	57 (14)	28.68 (97.12)
10th Gear									
140.03 (104.42)	14087 (63.65)	5.01 (8.06)	1899	4.09	0.442 (0.269)	16.03 (3.16)	183 (84)	59 (15)	28.68 (97.12)
11th Gear									
137.58 (102.59)	9060 (40.30)	5.69 (9.16)	1897	3.75	0.448 (0.273)	15.81 (3.11)	183 (84)	60 (16)	28.69 (97.16)
12th Gear									
138.89 (103.57)	7993 (35.55)	6.52 (10.49)	1897	3.24	0.441 (0.268)	16.06 (3.16)	183 (84)	61 (16)	28.68 (97.12)
13th Gear									
137.79 (102.75)	6966 (30.99)	7.42 (11.94)	1898	2.89	0.449 (0.273)	15.77 (3.11)	184 (84)	61 (16)	28.69 (97.16)
14th Gear									
132.30 (98.66)	5826 (25.91)	8.52 (13.71)	1904	2.45	0.462 (0.281)	15.32 (3.02)	184 (84)	63 (17)	28.70 (97.19)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: None

Maximum Force Exerted Through Whole Range:	14760 lbs	(65.7 kN)
i) Opening pressure of relief valve:	NA	
Sustained pressure of the open relief valve:	2880 psi	(199 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	30.2 GPM	(114.3 l/min)
iii) Pump delivery rate at maximum hydraulic power:	26.1 GPM	(98.8 l/min)
Delivery pressure:	2650 psi	(183 bar)
Power:	40.4 HP	(30.1 kW)

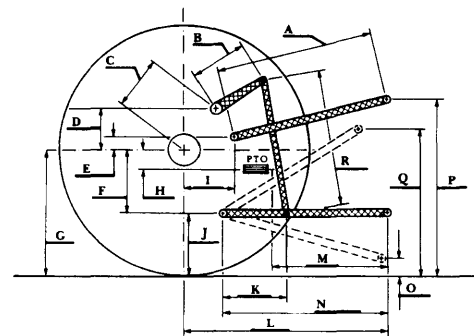
THREE POINT HITCH PERFORMANCE (SAE Static Test)

Observed Maximum Pressure psi. (bar)	2990 (206)
Location	lift cylinder
Hydraulic oil temperature °F (°C)	148(64)
Location	hydraulic sump
Category	III
Quick attach	No

SAE Static test system pressure-2690 psi (186 bar)

	10.0 (254)	16.0 (406)	24.0 (610)	32.0 (813)	39.7 (1008)
Hitch point distance to ground level					
Lift force on frame lb	19665	18945	18621	18135	17379
Lift force on frame (kN)	(87.5)	(84.3)	(82.8)	(80.7)	(77.3)

HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	30.7	781
B	15.2	385
C	20.7	527
D	17.9	455
E	10.8	275
F	12.6	320
G	34.3	870
H	1.5	39
I	17.7	450
J	21.7	550
K	21.6	548
L	49.0	1245
M	24.8	629
N	39.0	991
O	10.0	254
P	48.6	1235
Q	39.1	994
R	33.5	851



White 8410 Diesel

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