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January 2000

Nebraska Summary 334: AGCO DT180 Diesel

Nebraska Tractor Test Lab

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NEBRASKA OECD TRACTOR TEST 1782 - SUMMARY 334

WHITE 8610 DIESEL

ALSO AGCO ALLIS 9765 DIESEL(CUMMINS ENGINE)

ALSO AGCO DT180 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)					
184.29 (137.43)	2200	11.49 (43.48)	0.438 (0.266)	16.05 (3.16)	
Standard Power Take-off Speed (1004 rpm)					
200.01 (149.15)	2100	11.91 (45.10)	0.419 (0.255)	16.79 (3.31)	
Maximum Power (2 Hours)					
200.01 (149.15)	2100	11.91 (45.10)	0.419 (0.255)	16.79 (3.31)	

VARYING POWER AND FUEL CONSUMPTION

184.29 (137.43)	2200	11.49 (43.48)	0.438 (0.266)	16.05 (3.16)	Air temperature
163.03 (121.57)	2293	10.80 (40.88)	0.466 (0.283)	15.10 (2.97)	77°F (25°C)
124.61 (92.92)	2330	8.88 (33.61)	0.501 (0.305)	14.03 (2.76)	Relative humidity
84.43 (62.96)	2379	7.04 (26.66)	0.586 (0.357)	11.99 (2.36)	35%
42.99 (32.06)	2423	5.25 (19.88)	0.858 (0.522)	8.19 (1.61)	Barometer
1.68 (1.25)	2464	3.46 (13.09)	14.446 (8.787)	0.49 (0.10)	29.00" Hg(98.21 kPa)

Maximum Torque - 633 lb.-ft. (858 Nm) at 1300 rpm

Maximum Torque Rise - 43.7%

Torque rise at 1800 engine rpm - 26%

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—8th Gear									
160.22 (119.47)	13491 (60.01)	4.45 (7.17)	2199	4.34	0.499 (0.304)	14.08 (2.77)	187 (86)	61 (16)	28.91 (97.90)
75% of Pull at Maximum Power—8th Gear									
127.92 (95.39)	10125 (45.04)	4.74 (7.63)	2309	3.24	0.540 (0.328)	13.02 (2.56)	186 (86)	64 (18)	28.90 (97.87)
50% of Pull at Maximum Power—8th Gear									
87.90 (65.55)	6751 (30.03)	4.88 (7.86)	2356	2.13	0.622 (0.378)	11.30 (2.23)	186 (85)	68 (20)	28.87 (97.77)
75% of Pull at Reduced Engine Speed—10th Gear									
127.79 (95.29)	10083 (44.85)	4.75 (7.65)	1803	3.15	0.452 (0.275)	15.56 (3.07)	184 (84)	67 (19)	28.88 (97.80)
50% of Pull at Reduced Engine Speed—10th Gear									
87.97 (65.60)	6763 (30.08)	4.88 (7.85)	1828	2.13	0.498 (0.303)	14.12 (2.78)	183 (84)	68 (20)	28.86 (97.73)

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

Dates of Test: September 12 - 26, 2000

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) 0.8441 **Fuel weight** 7.028 lbs/gal (0.842 kg/l) **Oil** SAE 15W40 **API service classification** CE/CF-4 **Transmission and hydraulic lubricant** AGCO Power Fluid 821 XL fluid **Front axle lubricant** AGCO Gear Lube 715 **Total time engine was operated** 19.0 hours

ENGINE: Make Cummins **Diesel Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 45758300 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.488" x 5.315" (114.0 mm x 135.0 mm) **Compression ratio** 17.3 to 1 **Displacement** 505 cu in (8268 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 transmission and hydraulic 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: 76.6 - 84.7 lb/h (34.7 -38.4 kg/h) **High idle:** 2380 - 2480 rpm **Turbo boost:** nominal 17.0 - 23.0 psi (117 - 159 kPa) as measured 21.7 psi (149 kPa)

CHASSIS: Type front wheel assist **Serial No.** *CH124002* **Tread width** rear 61.5" (1562 mm) to 126.0" (3200 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) **Wheelbase** 121.0" (3073 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 (2.32) second 1.86 (3.00) third 2.40 (3.87) fourth 2.75 (4.42) fifth 3.09 (4.98) sixth 3.53 (5.68) seventh 4.01 (6.45) eighth 4.57 (7.35) ninth 5.17 (8.32) tenth 5.89 (9.48) eleventh 6.69 (10.77) twelfth 7.62 (12.27) thirteenth 8.62 (13.87) fourteenth 9.82 (15.80) fifteenth 11.15 (17.95) sixteenth 14.37 (23.12) seventeenth 18.59 (29.91) eighteenth 23.94 (38.53) reverse 1.44 (2.32), 2.40 (3.87), 2.75 (4.42), 4.01 (6.45), 4.57 (7.35), 6.69 (10.77) **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** single wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 1000 rpm at 2091 engine rpm **Unladen tractor mass** 19485 lb (8838 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 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)
138.09 (102.97)	18618 (82.82)	2.78 (4.48)	2245	13.89	5th Gear 0.559 (0.340)	12.56 (2.47)	187 (86)	54 (12)	28.90 (97.87)
158.47 (118.17)	18006 (80.09)	3.30 (5.31)	2192	8.05	6th Gear 0.510 (0.310)	13.77 (2.71)	187 (86)	58 (14)	28.91 (97.90)
169.75 (126.58)	17680 (78.64)	3.60 (5.79)	2099	7.72	7th Gear 0.492 (0.299)	14.29 (2.82)	187 (86)	59 (15)	28.91 (97.90)
173.43 (129.33)	15459 (68.77)	4.21 (6.77)	2099	5.40	8th Gear 0.482 (0.293)	14.59 (2.87)	186 (86)	62 (17)	28.92 (97.93)
171.06 (127.56)	13347 (59.37)	4.81 (7.73)	2098	4.25	9th Gear 0.484 (0.294)	14.53 (2.86)	186 (86)	62 (17)	28.92 (97.93)
175.23 (130.67)	11959 (53.19)	5.50 (8.84)	2093	3.79	10th Gear 0.479 (0.291)	14.69 (2.89)	186 (86)	62 (17)	28.92 (97.93)
172.06 (128.31)	10260 (45.64)	6.29 (10.12)	2096	3.24	11th Gear 0.482 (0.293)	14.57 (2.87)	186 (86)	62 (17)	28.92 (97.93)
172.00 (128.26)	8969 (39.90)	7.19 (11.57)	2095	2.88	12th Gear 0.483 (0.294)	14.54 (2.86)	187 (86)	63 (17)	28.91 (97.90)
170.30 (126.99)	7808 (34.73)	8.18 (13.16)	2101	2.69	13th Gear 0.487 (0.296)	14.43 (2.84)	186 (86)	63 (17)	28.91 (97.90)

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 138°F (59°C). The pull in 3rd gear (ballasted tractor) was limited to avoid excessive tractor bouncing. The performance figures on this Summary were taken from a test conducted under the OECD Code II test procedure.

Report reissued: Supplemental sales permits for AGCO Allis 9765 Diesel (Cummins engine) and AGCO DT180 Diesel, October, 2001.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1782**, Nebraska Summary 334, October 30, 2001.

Leonard L. Bashford
Director

M.F. Kocher
V.I. Adamchuk
G.J. Hoffman
Board of Tractor Test Engineers

TIRES, BALLAST AND WEIGHT

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

Ballast - Duals (total)

- Cast Iron (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 18.4R46; ***, 16 (110)

1850 lb (839 kg)

1800 lb (817 kg)

Two 14.9R34; ***, 30 (205)

None

1985 lb (900 kg)

17.5 in (445 mm)

15795 lb (7164 kg)

9490 lb (4305 kg)

25285 lb (11469 kg)

Without Ballast

Two 18.4R46; ***, 22 (150)

None

None

Two 14.9R34; ***, 24 (165)

None

None

17.5 in (445 mm)

12610 lb (5720 kg)

7040 lb (3193 kg)

19650 lb (8913 kg)

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)	Temp.°F (°C) cool- ing med	Barom. inch Hg (kPa)		
3rd Gear									
142.28 (106.10)	23672 (105.30)	2.25 (3.63)	2247	9.95	0.553 (0.336)	12.71 (2.50)	187 (86)	65 (18)	29.02 (98.27)
4th Gear									
157.45 (117.41)	23216 (103.27)	2.54 (4.09)	2168	7.99	0.519 (0.315)	13.55 (2.67)	187 (86)	67 (19)	29.03 (98.31)
5th Gear									
167.50 (124.91)	22241 (98.93)	2.82 (4.55)	2101	6.30	0.498 (0.303)	14.12 (2.78)	187 (86)	69 (21)	29.04 (98.34)
6th Gear									
172.40 (128.56)	19828 (88.20)	3.26 (5.25)	2097	4.90	0.488 (0.297)	14.40 (2.84)	187 (86)	71 (22)	29.05 (98.37)
7th Gear									
172.61 (128.72)	17323 (77.06)	3.74 (6.01)	2098	4.10	0.483 (0.294)	14.54 (2.86)	187 (86)	73 (23)	29.06 (98.41)
8th Gear									
169.24 (126.20)	14824 (65.94)	4.28 (6.89)	2097	3.46	0.489 (0.297)	14.38 (2.83)	186 (86)	75 (24)	29.07 (98.44)
9th Gear									
169.23 (126.19)	13050 (58.05)	4.86 (7.83)	2098	3.19	0.490 (0.298)	14.34 (2.83)	187 (86)	76 (24)	29.08 (98.48)
10th Gear									
169.86 (126.66)	11439 (50.88)	5.57 (8.96)	2102	2.82	0.486 (0.296)	14.45 (2.85)	187 (86)	76 (24)	29.09 (98.51)
11th Gear									
168.62 (125.74)	9982 (44.40)	6.33 (10.19)	2099	2.45	0.492 (0.299)	14.29 (2.81)	187 (86)	77 (25)	29.11 (98.58)
12th Gear									
167.41 (124.84)	8676 (38.59)	7.24 (11.65)	2099	2.26	0.495 (0.301)	14.19 (2.80)	186 (86)	78 (26)	29.11 (98.58)
13th Gear									
166.75 (124.34)	7632 (33.95)	8.19 (13.19)	2097	1.98	0.498 (0.303)	14.11 (2.78)	186 (86)	78 (26)	29.10 (98.54)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 8th gear	77.0	76.2
Bystander	--	--

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: None

Maximum Force Exerted

Through Whole Range: 19710 lbs (87.7 kN)

High flow option

i) Opening pressure of relief valve:	NA	
Sustained pressure of the open relief valve:	2860 psi (197 bar)	2850 psi (196 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	30.3 GPM (114.7 l/min)	39.3 GPM (148.8 l/min)
iii) Pump delivery rate at maximum hydraulic power:	26.1 GPM (98.8 l/min)	35.9 GPM (135.9 l/min)
Delivery pressure:	2640 psi (182 bar)	2490 psi (172 bar)
Power:	40.2 HP (30.0 kW)	52.2 Hp (38.9 kW)

THREE POINT HITCH PERFORMANCE

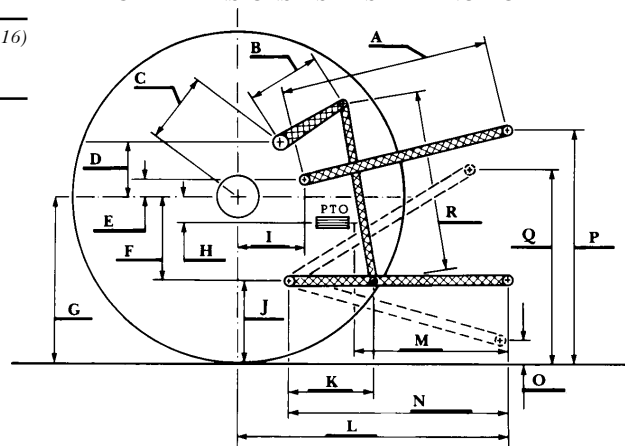
Observed Maximum Pressure psi.(bar)	3020(208)
Location:	lift cylinder
Hydraulic oil temperature: °F(°C)	149(65)
Location:	hydraulic sump
Category:	III
Quick attach:	none

SAE Static Test—System pressure 2720 psi (188 Bar)

Hitch point distance to ground level in. (mm)	11.7 (297)	16.0 (406)	24.0 (610)	32.0 (813)	40.0 (1016)
Lift force on frame lb	22635	23229	22302	22860	21726
" " " " " (kN)	(100.7)	(103.3)	(99.2)	(101.7)	(96.6)

	SAE TEST		OECD TEST	
	inch	mm	inch	mm
A	28.8	732	29.8	756
B	15.0	380	15.0	380
C	19.4	492	19.4	492
D	17.6	447	17.6	447
E	11.0	280	11.0	280
F	13.0	330	13.0	330
G	36.3	920	34.3	870
H	3.9	100	3.9	100
I	17.6	447	17.6	447
J	23.3	590	21.3	540
K	21.3	540	23.2	590
L	48.2	1225	48.2	1225
M	23.1	588	23.1	588
N	38.4	975	38.4	975
O	11.6	295	9.3	235
P	45.3	1150	48.2	1225
Q	41.5	1054	36.9	937
R	34.0	864	36.0	914

HITCH DIMENSIONS AS TESTED - NO LOAD



White 8610 Diesel

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Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Darrell Nelson, Dean and Director