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2001

## Tractor Test 1780A: White 8785

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# NEBRASKA TRACTOR TEST 1780A

## AGCO ALLIS 8785 DIESEL

### 32 SPEED

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

**Dates of Test:** June 6-7, 2000

**Manufacturer:** AGCO Corporation, Duluth Georgia 30096

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60° F (15°/15°C) 0.8487 Fuel weight 7.067 lbs/gal (0.847 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 8.0 hours

**ENGINE:** Make SiSu Diesel Type six cylinder vertical with turbocharger Serial No. G12472 Crankshaft lengthwise Rated engine speed 2200 Bore and stroke 4.252" x 4.724" (108.0 mm x 120.0 mm) Compression ratio 16.5 to 1 Displacement 402 cu in (6600 ml) Starting system 12 volt Lubrication pressure Air cleaner one paper element and one polyester felt element and aspirator Oil filter one full flow cartridge Oil cooler radiator for hydraulic and transmission oil, engine coolant heat exchanger for crankcase oil Fuel filter one paper element and water separator Muffler underhood Exhaust vertical Cooling medium temperature control one thermostat and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: 48.4 - 53.4 lb/h (22.0 - 24.2 kg/h) High idle: 2300 - 2400 rpm Turbo boost: nominal 11.0-13.0 psi (76 - 90 kPa) as measured 11.8 (81 kPa)

**CHASSIS:** Type front wheel assist Serial No. \*F286021\* Tread width rear 60.0" (1524 mm) to 118.1" (3000 mm) front 61.7" (1567 mm) to 80.8" (2053 mm) Wheelbase 112.6" (2860 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (4) range operator controlled powershifting Nominal travel speeds mph (km/h) first 1.27 (2.04) second 1.49 (2.40) third 1.76 (2.83) fourth 2.06 (3.31) fifth 2.16 (3.47) sixth 2.53 (4.07) seventh 2.84 (4.57) eighth 2.98 (4.80) ninth 3.32 (5.35) tenth 3.49 (5.62) eleventh 3.85 (6.19) twelfth 3.93 (6.32) thirteenth 4.50(7.24) fourteenth 4.59(7.39) fifteenth 4.76(7.66) sixteenth 5.31(8.55) seventeenth 5.58 (8.98) eighteenth 6.22 (10.01) nineteenth 6.58 (10.59) twentieth 7.71 (12.40) twenty-first 8.09 (13.02) twenty-second 9.48 (15.25) twenty-third 10.66 (17.15) twenty-fourth 11.18 (17.99) twenty-fifth 12.47(20.06) twenty-sixth 13.09(21.06) twenty-seventh 14.42(23.20) twenty-eighth 14.72 (23.69) twenty-ninth 16.87 (27.15) thirtieth 17.23 (27.73) thirty-first 19.92(32.05) thirty-second 23.31 (37.52)

#### 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 1100 rpm)					
112.34 (83.77)	2200	7.08 (26.80)	0.445 (0.271)	15.87 (3.13)	
Maximum Power (2 hours)					
117.11 (87.33)	2000	6.86 (25.96)	0.414 (0.252)	17.07 (3.36)	
Standard Power Take-off Speed(1000 rpm)					
117.11 (87.33)	2000	6.86 (25.96)	0.414 (0.252)	17.07 (3.36)	

#### VARYING POWER AND FUEL CONSUMPTION

112.34 (83.77)	2200	7.08 (26.80)	0.445 (0.271)	15.87 (3.13)	Air temperature
98.55 (73.49)	2275	6.62 (25.07)	0.475 (0.289)	14.88 (2.93)	76°F (25°C)
75.00 (55.93)	2300	5.48 (20.73)	0.516 (0.314)	13.70 (2.70)	Relative humidity
50.33 (37.53)	2324	4.37 (16.55)	0.614 (0.373)	11.51 (2.27)	51%
25.66 (19.15)	2345	3.35 (12.69)	0.924 (0.562)	7.65 (1.51)	Barometer
1.69 (1.26)	2362	2.25 (8.52)	9.428 (5.736)	0.75 (0.15)	29.16"Hg (98.75 kPa)

Maximum Torque 388 lb.-ft. (526 Nm) at 1150 rpm  
Maximum Torque Rise -44.6%  
Torque rise at 1799 rpm -24%

#### TRACTOR SOUND LEVEL WITH CAB

	Front Wheel Drive	
	Disengaged	Engaged
At no load in 14th(3LD) gear	dB(A)	dB(A)
Bystander	79.0	79.8
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#### TIRES 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 18.4R38; \*\*\*,16 (110)  
Two 14.9R28; \*\*\*,24 (165)  
18.0 in (405 mm)  
8120 lb (3683 kg)  
4505 lb (2044 kg)  
12625 lb (5727 kg)

### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

Maximum Force Exerted Through Whole Range: 9414 lbs (41.9kN)

i) Opening pressure of relief valve: NA

Sustained pressure of the open relief valve: 2840 psi (196 bar)

ii) Pump delivery rate at minimum pressure and rated engine speed: 28.8 GPM (109.0 l/min)

iii) Pump delivery rate at maximum hydraulic power: 24.2 GPM (91.6 l/min)

Delivery pressure: 2680 psi (185 bar)

Power: 37.8 HP (28.2 kW)

### THREE POINT HITCH PERFORMANCE

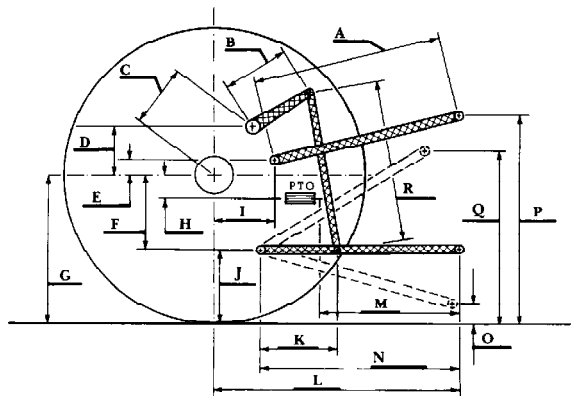
Observed Maximum Pressure psi.(bar) 2850 (196)  
Location: lift cylinder  
Hydraulic oil temperature: °F(°C) 149 (65)  
Location: hydraulic sump  
Category: II  
Quick attach: none

SAE Static Test System pressure 2558 psi (176 Bar)

Hitch point distance to ground level in. (mm) 7.9 (201) 14.9 (378) 21.9 (556) 28.9 (734) 35.9 (912)  
Lift force on frame lb 13338 12708 12222 11412 10431  
" " " " " (kN) (59.3) (56.5) (54.4) (52.3) (46.4)

### HITCH DIMENSIONS AS TESTED - NO LOAD

	inch	mm
A	26.9	683
B	11.6	295
C	13.9	354
D	13.0	330
E	7.9	200
F	10.2	260
G	32.3	820
H	1.7	43
I	15.0	382
J	22.1	560
K	21.7	550
L	40.9	1040
M	23.2	590
N	37.0	940
O	7.9	200
P	46.1	1170
Q	36.1	918
R	28.3	719



Agricultural Research Division  
Institute of Agriculture and Natural Resources  
University of Nebraska Lincoln  
Darrell Nelson, Dean and Director

reverse 1.16 (1.86), 1.35 (2.18), 1.60 (2.57), 1.87 (3.01), 1.96 (3.16), 2.30 (3.70), 2.58 (4.16), 2.72 (4.37), 3.03 (4.87), 3.18 (5.12), 3.50 (5.64), 3.57 (5.75), 4.10 (6.60), 4.18 (6.73), 4.34 (6.98), 4.84 (7.79), 5.08 (8.17), 5.66 (9.11), 6.00 (9.65), 7.02 (11.29), 7.37 (11.86), 8.63 (13.89), 9.70 (15.61), 10.18 (16.39), 11.36 (18.28), 11.92 (19.18), 13.13 (21.13), 13.40 (21.57), 15.37 (24.73), 15.69 (25.25), 18.14 (29.19), 21.23 (34.17) **Clutch** multiple wet disc operated by foot pedal **Brakes** single wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1980 engine rpm or 1000 rpm at 2000 engine rpm **Unladen tractor mass** 12450 lb (5647 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 was maintained at 144°F (62°C).

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1780A**, June 28, 2000.

David L. Morgan  
Assistant Director

L.L. Bashford  
G.J. Hoffman  
M.F. Kocher  
Board of Tractor Test Engineers

AGCO Allis 8785 Diesel