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## Test 1677: White 6145 Diesel 18-Speed

Nebraska Tractor Test Lab

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

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# NEBRASKA OECD TRACTOR TEST 1677—SUMMARY 149

## WHITE 6145 DIESEL

### 18 SPEED

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

**Dates of Test:** April 25 to May 6, 1994

**Manufacturer:** AGCO Corporation, Norcross,  
Georgia 30092

**FUEL OIL and TIME:** Fuel No. 2 Diesel **Cetane**  
**No. 53.9 Specific gravity converted to 60°/60°**  
**F (15°/15°C)** 0.8400 **Fuel weight** 6.994 lbs/gal  
(0.838 kg/l) **Oil SAE** 15W-40 **API service**  
**classification** SG/CET **motor** 3.573 gal (13.525 l)  
**Drained from motor** 3.464 gal (13.113 l)  
**Transmission and hydraulic lubricant** AGCO  
Power Fluid 821XL **Front axle lubricant** AGCO  
Gear Lube 715 SAE 80W-90 **Total time engine**  
**was operated** 20.0 hours.

**ENGINE:** Make Cummins Diesel **Type** six  
cylinder vertical with turbocharger and intercooler  
**Serial No.** 44917075 **Crankshaft** lengthwise **Rated**  
**engine speed** 2200 **Bore and stroke** (as specified)  
4.016" × 4.72" (102.0 mm × 120.0 mm) **Compression**  
**ratio** 15.5 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 **Muffler** underhood **Exhaust**  
vertical **Cooling medium temperature control**  
one thermostat

**ENGINE OPERATING PARAMETERS:** **Fuel**  
**rate:** 55.3-61.5 lb/h (25.1-27.9 kg/h) **High idle:**  
2325-2425 rpm **Turbo boost** nominal 15.0-17.0 psi  
(105-120 kPa) as measured 16.5 psi (114 kPa)

**CHASSIS:** **Type** front wheel assist **Serial No.**  
640099 **Tread width** rear 65.0" (1651 mm) to 124.0"  
(3150 mm) front 62.6" (1590 mm) to 88.6" (2250 mm)  
**Wheel base** 107.0" (2718 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 1.57 (2.53) second 1.86 (2.99) third 2.17 (3.49)  
fourth 2.49 (4.00) fifth 2.94 (4.73) sixth 3.44 (5.54)  
seventh 4.05 (6.52) eighth 4.79 (7.70) ninth 5.60 (9.01)  
tenth 6.50 (10.47) eleventh 7.69 (12.37) twelfth 8.99  
(14.47) thirteenth 10.30 (16.58) fourteenth 12.18  
(19.60) fifteenth 14.25 (22.93) sixteenth 16.77 (26.99)  
seventeenth 19.82 (31.90) eighteenth 23.20 (37.33)  
reverse 1.90 (3.06), 2.25 (3.62), 2.63 (4.24), 3.02  
(4.86), 3.57 (5.74), 4.17 (6.71), 4.91 (7.90), 5.80 (9.34),  
6.79 (10.93) **Clutch** multiple wet disc hydraulically  
actuated by two foot pedals **Brakes** wet multiple disc  
hydraulically actuated by two foot pedals which can be  
locked together **Steering** hydrostatic **Power take-**  
**off** 540 rpm at 2024 engine rpm and 1000 rpm at 2000  
engine rpm **Unladen tractor mass** 16884 lb (7658  
kg)

#### 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)					
142.70 (106.41)	2200	8.56 (32.39)	0.419 (0.255)	16.68 (3.29)	
Standard Power Take-off Speed (1000 rpm)					
141.05 (105.18)	2001	8.11 (30.70)	0.402 (0.245)	17.39 (3.43)	

#### VARYING POWER AND FUEL CONSUMPTION

142.70 (106.41)	2200	8.56 (32.39)	0.419 (0.255)	16.68 (3.29)	Air temperature
125.67 (93.71)	2275	7.76 (29.39)	0.432 (0.263)	16.19 (3.19)	75°F (24°C)
95.28 (71.05)	2295	6.43 (24.36)	0.472 (0.287)	14.81 (2.92)	Relative humidity
64.37 (48.00)	2330	5.06 (19.16)	0.550 (0.335)	12.72 (2.51)	37%
32.63 (24.33)	2361	3.86 (14.61)	0.827 (0.503)	8.45 (1.66)	Barometer
0.37 (0.27)	2419	2.70 (10.23)	51.293 (31.201)	0.14 (0.03)	29.11" Hg (98.57 kPa)

Maximum Torque 430 lb.-ft. (583 Nm) at 1501 rpm  
Maximum Torque Rise 26.1%  
Torque rise at 1810 engine rpm 17%

#### DRAWBAR PERFORMANCE

##### 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—7th Gear									
125.33 (93.46)	12147 (54.03)	3.87 (6.23)	2201	5.15	0.478 (0.291)	14.64 (2.88)	186 (86)	58 (14)	28.99 (98.17)
75% of Pull at Maximum Power—7th Gear									
99.18 (73.96)	9105 (40.50)	4.08 (6.57)	2277	3.29	0.500 (0.304)	13.98 (2.75)	187 (86)	63 (17)	28.97 (98.10)
50% of Pull at Maximum Power—7th Gear									
68.26 (50.90)	6076 (27.03)	4.21 (6.78)	2319	1.98	0.580 (0.353)	12.06 (2.38)	182 (83)	63 (17)	28.97 (98.10)
75% of Pull at Reduced Engine Speed—9th Gear									
99.13 (73.92)	9095 (40.46)	4.09 (6.58)	1648	3.38	0.453 (0.275)	15.45 (3.04)	186 (86)	63 (17)	28.97 (98.10)
50% of Pull at Reduced Engine Speed—9th Gear									
68.17 (50.84)	6086 (27.07)	4.20 (6.76)	1672	2.07	0.495 (0.301)	14.14 (2.79)	184 (84)	63 (17)	28.97 (98.10)

**DRAWBAR PERFORMANCE  
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									
95.62 (71.30)	16128 (71.74)	2.22 (3.58)	2276	14.22	0.557 (0.339)	12.55 (2.47)	183 (84)	55 (13)	29.01 (98.24)
5th Gear									
110.00 (82.03)	15079 (67.07)	2.74 (4.40)	2261	10.17	0.520 (0.316)	13.45 (2.65)	185 (85)	57 (14)	29.00 (98.21)
6th Gear									
120.48 (89.84)	14116 (62.79)	3.20 (5.15)	2198	7.57	0.494 (0.300)	14.16 (2.79)	186 (85)	58 (14)	29.00 (98.21)
7th Gear									
125.33 (93.46)	12147 (54.03)	3.87 (6.23)	2201	5.15	0.478 (0.291)	14.64 (2.88)	186 (86)	58 (14)	28.99 (98.17)
8th Gear									
124.13 (92.57)	10037 (44.56)	4.64 (7.46)	2198	3.72	0.479 (0.292)	14.59 (2.87)	186 (86)	59 (15)	28.99 (98.17)
9th Gear									
123.34 (91.97)	8451 (37.59)	5.47 (8.81)	2200	2.95	0.483 (0.294)	14.49 (2.85)	187 (86)	60 (16)	28.98 (98.14)
10th Gear									
125.11 (93.29)	7348 (32.69)	6.38 (10.28)	2199	2.51	0.477 (0.290)	14.66 (2.89)	188 (86)	61 (16)	28.97 (98.10)
11th Gear									
125.30 (93.43)	6200 (27.58)	7.58 (12.20)	2199	2.34	0.479 (0.291)	14.60 (2.88)	187 (86)	62 (17)	28.97 (98.10)
12th Gear									
122.33 (91.22)	5147 (22.89)	8.91 (14.34)	2201	1.72	0.489 (0.297)	14.32 (2.82)	187 (86)	62 (17)	28.97 (98.10)

**DRAWBAR PERFORMANCE (BALLASTED —FRONT DRIVE ENGAGED)  
MAXIMUM POWER IN SELECTED GEARS**

4th Gear									
112.46 (83.86)	19412 (86.35)	2.17 (3.50)	2205	13.90	0.533 (0.324)	13.11 (2.58)	186 (85)	52 (11)	29.05 (98.37)
5th Gear									
122.91 (91.65)	16613 (73.90)	2.77 (4.47)	2199	6.61	0.486 (0.296)	14.38 (2.83)	185 (85)	53 (12)	29.06 (98.41)
6th Gear									
125.06 (93.26)	14169 (63.02)	3.31 (5.33)	2201	5.14	0.478 (0.291)	14.63 (2.88)	184 (84)	53 (12)	29.05 (98.37)
7th Gear									
127.65 (95.19)	12162 (54.10)	3.94 (6.33)	2200	3.96	0.467 (0.284)	14.97 (2.95)	186 (86)	54 (12)	29.04 (98.34)
8th Gear									
126.43 (94.28)	10113 (44.98)	4.69 (7.55)	2199	3.18	0.474 (0.288)	14.76 (2.91)	188 (86)	54 (12)	29.04 (98.34)
9th Gear									
125.80 (93.81)	8547 (38.02)	5.52 (8.88)	2199	2.66	0.477 (0.290)	14.66 (2.89)	188 (86)	54 (12)	29.04 (98.34)
10th Gear									
126.03 (93.98)	7344 (32.67)	6.44 (10.36)	2199	2.31	0.475 (0.289)	14.74 (2.90)	186 (86)	54 (12)	29.04 (98.34)
11th Gear									
126.82 (94.57)	6225 (27.69)	7.64 (12.30)	2202	2.13	0.474 (0.288)	14.76 (2.91)	187 (86)	54 (12)	29.04 (98.34)
12th Gear									
123.53 (92.11)	5176 (23.02)	8.95 (14.40)	2197	1.77	0.486 (0.296)	14.40 (2.84)	187 (86)	54 (12)	29.04 (98.34)

**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 157° F (69°C). This tractor did not meet manufacturers claim of 22 GPM (84 l/m) hydraulic flow or 3 point lift capacity of 7212 lbs (3271 kg) (optionally-8544 lbs (3875 kg)). The performance results on this summary were taken from OECD tests conducted under the Code II Restricted Standard Test Code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1677**, Summary 149, June 17, 1994.

LOUIS I. LEVITICUS  
Engineer-in-Charge

R.D. GRISIO  
M.F. KOCHER  
K. VON BARGEN  
Board of Tractor Test Engineers

# **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	
<b>Maximum Power—7th Gear</b>									
125.95 (93.92)	12142 (54.01)	3.89 (6.26)	2199	4.88	0.475 (0.289)	14.74 (2.90)	186 (86)	54 (12)	29.04 (98.34)
<b>75% of Pull at Maximum Power—7th Gear</b>									
99.15 (73.94)	9076 (40.37)	4.10 (6.59)	2279	3.52	0.504 (0.307)	13.88 (2.73)	187 (86)	53 (12)	29.03 (98.31)
<b>50% of Pull at Maximum Power—7th Gear</b>									
68.12 (50.79)	6051 (26.92)	4.22 (6.79)	2321	2.39	0.582 (0.354)	12.01 (2.37)	182 (83)	53 (12)	29.03 (98.31)
<b>75% of Pull at Reduced Engine Speed—9th Gear</b>									
99.26 (74.02)	9069 (40.34)	4.10 (6.61)	1651	3.43	0.454 (0.276)	15.40 (3.03)	186 (86)	53 (12)	29.03 (98.31)
<b>50% of Pull at Reduced Engine Speed—9th Gear</b>									
68.29 (50.92)	6040 (26.87)	4.24 (6.82)	1685	2.30	0.495 (0.301)	14.13 (2.78)	185 (85)	53 (12)	29.03 (98.31)

## **MAXIMUM POWER IN SELECTED GEARS**

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	
<b>4th Gear</b>									
99.08 (73.89)	16693 (74.25)	2.23 (3.58)	2274	14.37	0.555 (0.338)	12.60 (2.48)	184 (84)	52 (11)	29.05 (98.37)
<b>5th Gear</b>									
117.25 (87.43)	16518 (73.47)	2.66 (4.28)	2199	10.46	0.511 (0.311)	13.70 (2.70)	185 (85)	53 (12)	29.06 (98.41)
<b>6th Gear</b>									
122.86 (91.62)	14178 (63.07)	3.25 (5.23)	2197	6.52	0.489 (0.297)	14.31 (2.82)	185 (85)	53 (12)	29.05 (98.37)
<b>7th Gear</b>									
125.95 (93.92)	12142 (54.01)	3.89 (6.26)	2199	4.88	0.475 (0.289)	14.74 (2.90)	186 (86)	54 (12)	29.04 (98.34)
<b>8th Gear</b>									
124.22 (92.63)	10015 (44.55)	4.65 (7.49)	2200	4.03	0.480 (0.292)	14.56 (2.87)	187 (86)	54 (12)	29.04 (98.34)
<b>9th Gear</b>									
123.52 (92.11)	8461 (37.64)	5.47 (8.81)	2197	3.35	0.487 (0.296)	14.37 (2.83)	187 (86)	54 (12)	29.04 (98.34)
<b>10th Gear</b>									
124.90 (93.14)	7322 (32.57)	6.40 (10.30)	2200	2.83	0.481 (0.293)	14.53 (2.86)	186 (86)	54 (12)	29.04 (98.34)
<b>11th Gear</b>									
125.20 (93.36)	6190 (27.53)	7.58 (12.21)	2198	2.30	0.480 (0.292)	14.58 (2.87)	187 (86)	54 (12)	29.04 (98.34)
<b>12th Gear</b>									
121.71 (90.76)	5114 (22.75)	8.92 (14.36)	2201	2.03	0.496 (0.301)	14.11 (2.78)	187 (86)	54 (12)	29.04 (98.34)

## **Front Wheel Drive** **Disengaged      Engaged** **dB(A)              dB(A)**

### **TRACTOR SOUND LEVEL WITH CAB**

At 75% load in 9th gear	76.5	77.0
Bystander	—	—

### **TIRES, BALLAST AND WEIGHT**

	<b>With Ballast</b>	<b>Without Ballast</b>
<b>Rear Tires</b> —No., size, ply & psi (kPa)	Four 18.4R42; **, 20 (140)	Two 18.4R42; **, 20 (140)
<b>Ballast</b> —Duals (total)	1700 lb (771 kg)	None
—Test Equip. (total)	164 lb (74 kg)	None
<b>Front Tires</b> —No., size, ply & psi (kPa)	Two 16.9R28; **, 22 (150)	Two 16.9R28; **, 22 (150)
<b>Ballast</b> —Liquid (total)	None	None
—Cast Iron (total)	None	None
<b>Height of Drawbar</b>	22.0 in (560 mm)	20.5 in (520 mm)
<b>Static Weight with Operator</b> —Rear	13080 lb (5933 kg)	11216 lb (5087 kg)
—Front	5834 lb (2646 kg)	5834 lb (2646 kg)
—Total	18914 lb (8579 kg)	17050 lb (7734 kg)

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

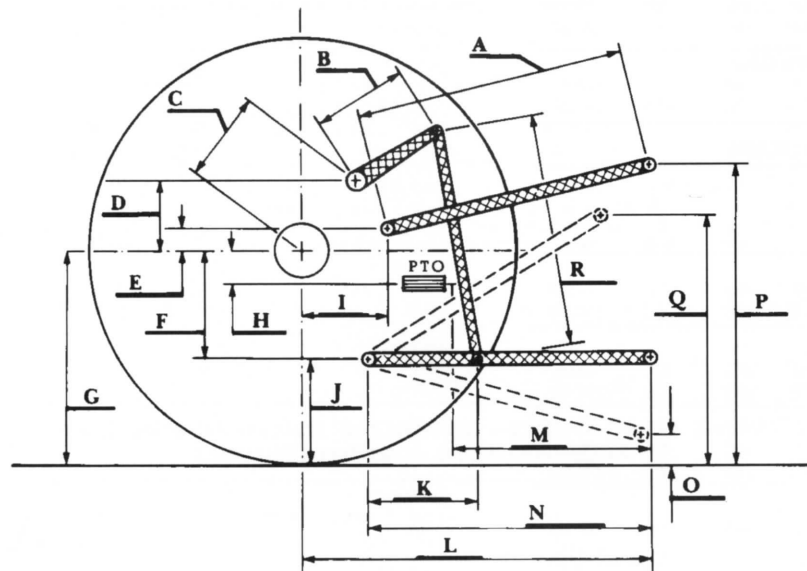
CATEGORY: III

Quick Attach: none

Maximum Force Exerted Through Whole Range: 5913 lbs (26.3 kN)  
6962 lbs (31.0 kN) with lift assist cylinder

- i) Opening pressure of relief valve: NA
- Sustained pressure with pump stalled: 2270 psi (156 bar)
- ii) Pump delivery rate at minimum pressure: 20.6 GPM (78.0 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 19.7 GPM (74.6 l/min)
- Delivery pressure: 1980 psi (136 bar)
- Power: 22.8 HP (17.0 kW)

### HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	25.3	641
B	16.0	406
C	19.8	502
D	18.2	461
E	9.1	230
F	10.2	259
G	35.0	889
H	1.9	48
I	20.1	508
J	24.8	630
K	21.4	543
L	45.3	1150
M	22.4	568
N	34.8	884
O	9.0	229
P	51.8	1316
Q	38.3	972
R	38.7	983



**WHITE 6145 DIESEL**

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