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## Test 1558: White Farm Equipment 4-225 Diesel 18-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1558—WHITE FARM EQUIPMENT 4-225 DIESEL 18 SPEED

## POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption		Temperature °F (°C)				Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cooling medium	Air wet bulb	Air dry bulb	

### MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed — Two hours (PTO Speed — 1002 rpm)								
195.65 (145.90)	2600	12.540 (47.470)	0.447 (0.272)	15.60 (3.074)	189 (87.2)	63 (17.0)	75 (23.8)	28.88 (97.51)

### VARYING POWER AND FUEL CONSUMPTION — Two Hours

170.62 (127.23)	2669	11.532 (43.653)	0.471 (0.287)	14.80 (2.915)	188 (86.7)	64 (17.8)	76 (24.4)	.....
0.00 (0.00)	2816	4.350 (16.468)	.....	.....	179 (81.4)	64 (17.5)	75 (23.9)	.....
88.08 (65.68)	2752	7.956 (30.117)	0.630 (0.383)	11.07 (2.181)	182 (83.3)	63 (17.2)	75 (23.6)	.....
196.60 (146.61)	2600	12.491 (47.285)	0.443 (0.269)	15.74 (3.101)	190 (87.8)	66 (18.6)	77 (25.0)	.....
44.44 (33.14)	2783	6.179 (23.390)	0.969 (0.590)	7.19 (1.417)	180 (81.9)	64 (17.5)	74 (23.3)	.....
129.93 (96.89)	2709	9.716 (36.779)	0.521 (0.317)	13.37 (2.634)	185 (84.7)	64 (17.5)	75 (23.9)	.....
<b>Av 104.95</b> <b>Av (78.26)</b>	<b>2721</b>	<b>8.704</b> <b>(32.949)</b>	<b>0.578</b> <b>(0.352)</b>	<b>12.06</b> <b>(2.375)</b>	<b>184</b> <b>(84.3)</b>	<b>64</b> <b>(17.7)</b>	<b>75</b> <b>(24.0)</b>	<b>28.86</b> <b>(97.46)</b>

### DRAWBAR PERFORMANCE

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)
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	

#### Maximum Available Power — Two Hours 11th (4D) Gear

168.78 (125.86)	11571 (51.47)	5.47 (8.80)	2600	3.56	12.378 (46.856)	0.511 (0.311)	13.64 (2.686)	191 (88.3)	61 (16.1)	78 (25.6)	28.96 (97.78)
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#### 75% of Pull at Maximum Power — Ten Hours 11th (4D) Gear

133.56 (99.60)	8773 (39.02)	5.71 (9.19)	2688	2.64	10.752 (40.699)	0.561 (0.341)	12.42 (2.447)	188 (86.6)	62 (16.6)	72 (22.1)	28.95 (97.74)
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#### 50% of Pull at Maximum Power — Two Hours 11th (4D) Gear

91.27 (68.06)	5850 (26.02)	5.85 (9.42)	2729	1.69	8.742 (33.092)	0.668 (0.406)	10.44 (2.057)	187 (86.1)	61 (16.1)	81 (27.2)	28.94 (97.71)
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#### 50% of Pull at Reduced Engine Speed — Two Hours 15th (5O) Gear

91.30 (68.08)	5851 (26.02)	5.85 (9.42)	1572	2.01	6.081 (23.021)	0.464 (0.282)	15.01 (2.957)	183 (83.6)	49 (9.2)	56 (13.1)	29.05 (98.10)
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### MAXIMUM POWER IN SELECTED GEARS

142.18 (106.02)	22865 (101.71)	2.33 (3.75)	2661	14.90	3rd (2U) Gear			184 (84.4)	46 (7.8)	51 (10.6)	29.06 (98.13)
154.43 (115.16)	22326 (99.31)	2.59 (4.17)	2598	12.34	4th (1O) Gear			185 (84.7)	48 (8.9)	54 (12.2)	29.06 (98.13)
163.63 (122.02)	20591 (91.59)	2.98 (4.80)	2597	8.51	5th (2D) Gear			187 (86.1)	59 (15.0)	65 (18.3)	28.97 (97.83)
164.65 (122.78)	18582 (82.65)	3.32 (5.35)	2598	6.72	6th (3U) Gear			188 (86.4)	60 (15.6)	67 (19.4)	28.98 (97.86)
165.08 (123.10)	17019 (75.70)	3.64 (5.85)	2598	5.84	7th (2O) Gear			188 (86.7)	60 (15.6)	69 (20.6)	28.98 (97.86)
168.88 (125.94)	15350 (68.28)	4.13 (6.64)	2600	5.24	8th (3D) Gear			189 (86.9)	61 (16.1)	71 (21.7)	28.99 (97.89)
167.74 (125.09)	14155 (62.96)	4.44 (7.15)	2601	4.56	9th (4U) Gear			189 (87.2)	61 (16.1)	72 (22.2)	28.99 (97.89)
166.78 (124.37)	12640 (56.22)	4.95 (7.96)	2600	3.79	10th (3O) Gear			189 (87.2)	61 (16.1)	73 (22.8)	28.98 (97.86)
170.57 (127.19)	11697 (52.03)	5.47 (8.80)	2599	3.48	11th (4D) Gear			190 (87.5)	62 (16.7)	76 (24.4)	28.98 (97.86)
165.93 (123.73)	9534 (42.41)	6.53 (10.50)	2600	2.85	12th (4O) Gear			190 (87.5)	61 (16.1)	73 (22.8)	28.97 (97.83)
167.19 (124.67)	9449 (42.03)	6.64 (10.68)	2597	2.77	13th (5U) Gear			190 (87.8)	61 (16.1)	74 (23.3)	28.97 (97.83)
167.01 (124.54)	7693 (34.22)	8.14 (13.10)	2599	2.29	14th (5D) Gear			190 (87.5)	62 (16.7)	75 (23.9)	28.98 (97.86)

Department of Agricultural Engineering

Dates of Test: April 9 to 15, 1985

**Manufacturer:** WHITE FARM EQUIPMENT COMPANY, 2625 Butterfield Road, Oakbrook, Illinois 60521

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel Cetane No. 48.3 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F (15/15°C)** 0.8374 **Fuel weight** 6.972 lbs/gal (0.836 kg/l) **Oil** White Farm Equipment Company Supreme Motor Oil SAE 30 **API service classification** CC-CD-SD-SE-SF **To motor** 7.692 gal (29.119 l) **Drained from motor** 7.244 gal (27.420 l) **Transmission and final drive lubricant** White Farm Equipment Company Universal Fluid **Total time engine was operated** 35.0 hours.

**ENGINE:** Make Caterpillar Diesel **Type** eight cylinder vee with turbocharger **Serial No.** 03203080 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 4.5" × 5.0" (114.3 mm × 127 mm) **Compression ratio** 16.5 to 1 **Displacement** 636 cu in (10422 ml) **Starting system** 12 volt **Lubrication pressure** **Air cleaner** two paper elements and aspirator **Oil filter** two full flow cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil, radiator for hydraulic-shift oil **Fuel filter** one paper cartridge and water separator **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** two thermostats.

**CHASSIS:** **Type** four wheel drive with duals **Serial No.** 302272-427 **Tread width** rear 60" (1524 mm) to 126" (3200 mm) front 60" (1524 mm) to 126" (3200 mm) **Wheel base** 117.75" (2990 mm) **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 70.6" (1793 mm) Vertical distance above roadway 43.7" (1110 mm) Horizontal distance from center of rear wheel tread 0" (0 mm) to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (3) range operator controlled powershift **Advertised speeds mph (km/h)** first 2.0 (3.2) second 2.5 (4.0) third 2.6 (4.2) fourth 2.9 (4.7) fifth 3.3 (5.2) sixth 3.6 (5.6) seventh 3.8 (6.1) eighth 4.3 (6.9) ninth 4.6 (7.4) tenth 5.1 (8.1) eleventh 5.6 (9.0) twelfth 6.6 (10.6) thirteenth 6.7 (10.8) fourteenth 8.2 (13.2) fifteenth 9.7 (15.6) sixteenth 11.7 (18.8) seventeenth 14.2 (22.9) eighteenth 16.9 (27.2) reverse 2.3 (3.8), 2.9 (4.6), 3.4 (5.5), 4.1 (6.6), 5.0 (8.0), 5.9 (9.5) **Clutch** dual dry disc operated by foot pedal **Brakes** multiple wet disc hydraulically power activated and operated by foot pedal **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 210" (5.33 m) left 210" (5.33 m) **Turning space**

### LUGGING ABILITY IN 11th (4D) GEAR

Crankshaft Speed rpm	2599	2343	2080	1815	1560	1298
Pull—lbs (kN)	11697 (52.03)	13245 (58.92)	14553 (64.73)	15282 (67.98)	15879 (70.63)	15634 (69.54)
Increase in Pull %	0	13	24	31	36	34
Power—Hp (kW)	170.57 (127.19)	173.13 (129.10)	167.88 (125.19)	153.24 (114.27)	136.47 (101.76)	111.83 (83.40)
Speed—Mph (km/h)	5.47 (8.80)	4.90 (7.89)	4.33 (6.96)	3.76 (6.05)	3.22 (5.19)	2.68 (4.32)
Slip %	3.48	4.02	4.48	4.94	5.24	5.24

### TRACTOR SOUND LEVEL WITH CAB

	<b>dB(A)</b>
Maximum Available Power—Two Hours	78.0
75% of Pull at Maximum Power—Ten Hours	78.0
50% of Pull at Maximum Power—Two Hours	78.0
50% of Pull at Reduced Engine Speed—Two Hours	77.5
Bystander in 18th (6O) gear	90.0

### TIRES, BALLAST AND WEIGHT

Rear Tires —No., size, ply & psi (kPa)

Ballast —Liquid (each)  
—Cast Iron (each)

Front Tires —No., size, ply & psi (kPa)

Ballast —Liquid (each)  
—Cast Iron (each)

Height of Drawbar

Static Weight with Operator—Rear  
—Front  
—Total

### Tested Without Ballast

Four 18.4-38; 8; inner  
14 (95) outer 12 (85)  
None  
None

Four 18.4-38; 8; inner  
14 (95) outer 12 (85)  
None  
None

14 in (355 mm)

9665 lb (4384 kg)  
14475 lb (6566 kg)  
24140 lb (10950 kg)

diameter (on concrete surface without brake) right 450 " (11.43 m) left 450" (11.43 m) **Power take-off** 1002 rpm at 2600 engine rpm **Unladen tractor mass** 23700 lbs (10750 kg).

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**REMARKS:** All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 156°F (69.1°C). Twelve gears were chosen between 15% slip and 10 mph (16.1 km/h). During final inspection of the engine, it was found that cylinder No. 2 was damaged due to a chipped oil ring.

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. 1558, June 19, 1985.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

L. L. BASHFORD

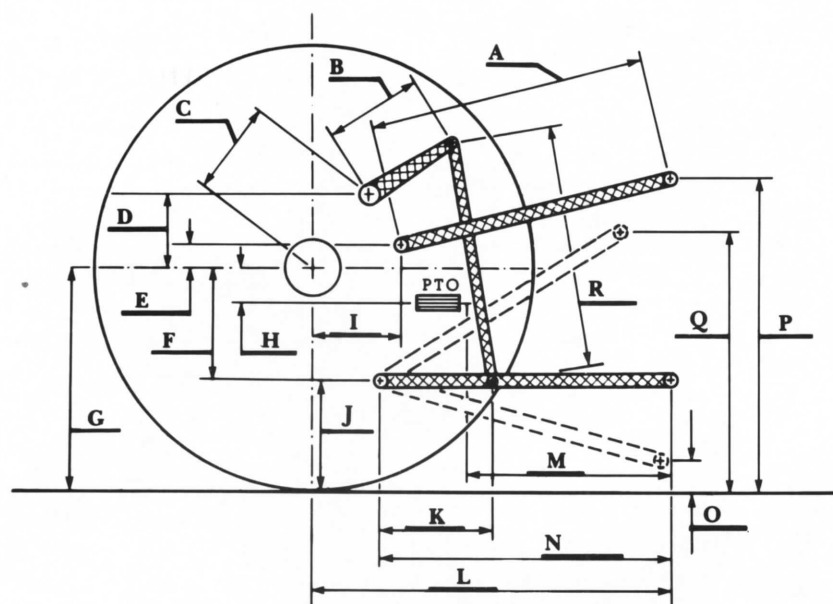
T. L. THOMPSON

Board of Tractor Test Engineers

### THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2200 (15170)	
Location	remote outlet	
Hydraulic oil temperature °F (°C)	156 (69)	
Location	pump inlet	
	<b>Maximum Lift Capacity</b>	<b>Lift Capacity for Transport</b>
QUICK ATTACH	yes	
CATEGORY	III	*not measured
LOAD lbs (kg)	6804 (3086)	
TIME sec	4.01	
HITCH POINT MOVEMENT in (mm)		
Lowest position	13.7 (348)	
Top of timed range	39.9 (1014)	
Highest position	40.0 (1016)	
LOAD CG MOVEMENT in' (mm)		
Lowest position	12.9 (328)	
Top of timed range	45.1 (1146)	
Highest position	45.4 (1153)	

\*Implement load capacity for transport purposes not specified by manufacturer.



Hitch Dimensions as Tested — No Load

	inch	mm
A	25.4	645
B	16.0	406
C	20.1	511
D	18.6	472
E	10.2	259
F	9.7	246
G	31.3	795
H	1.9	48
I	9.3	236
J	21.6	549
K	22.3	566
L	45.6	1158
L'	50.2	1275
M	28.4	721
N	39.7	1008
O	7.0	178
P	45.1	1146
Q	40.5	1029
R	40.0	1016
L' to end of quick attach		



White Farm Equipment 4-225 Diesel