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Test 1559: White Farm Equipment 4-270 Diesel 16-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1559—WHITE FARM EQUIPMENT 4-270 DIESEL 16 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 —1013 rpm)									
239.25 (178.41)	2100	14.480 (54.812)	0.422 (0.257)	16.52 (3.255)	196 (91.1)	66 (19.1)	75 (23.8)	28.96 (97.80)	
Standard Power Take-off Speed (1000 rpm) — One Hour									
242.30 (180.68)	2073	14.516 (54.950)	0.418 (0.254)	16.69 (3.288)	196 (91.1)	68 (19.8)	76 (24.3)	28.99 (97.89)	
VARYING POWER AND FUEL CONSUMPTION — Two Hours									
209.28 (156.06)	2161	13.140 (49.742)	0.438 (0.266)	15.93 (3.138)	196 (91.1)	68 (20.0)	76 (24.2)	..... .....
0.00 (0.00)	2286	3.749 (14.193)	..... .....	..... .....	194 (89.7)	68 (19.7)	75 (23.6)	..... .....
108.05 (80.57)	2231	8.436 (31.935)	0.545 (0.331)	12.81 (2.523)	195 (90.6)	67 (19.4)	76 (24.2)	..... .....
240.97 (179.70)	2101	14.533 (55.015)	0.421 (0.256)	16.58 (3.266)	196 (91.1)	67 (19.2)	76 (24.2)	..... .....
54.56 (40.68)	2263	6.213 (23.520)	0.795 (0.483)	8.78 (1.730)	194 (90.0)	66 (18.9)	75 (23.9)	..... .....
159.75 (119.12)	2199	10.728 (40.610)	0.469 (0.285)	14.89 (2.933)	195 (90.6)	66 (18.9)	75 (23.9)	..... .....
Av Av	128.77 (96.02)	2207	9.467 (35.836)	0.513 (0.312)	13.60 (2.680)	195 (90.5)	67 (19.4)	75 (24.0)	28.97 (97.82)

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 9th (3A) Gear											
207.98 (155.09)	11794 (52.46)	6.61 (10.64)	2100	3.00	14.318 (54.201)	0.480 (0.292)	14.53 (2.861)	197 (91.4)	60 (15.6)	75 (23.9)	28.78 (97.19)
75% of Pull at Maximum Power — Ten Hours 9th (3A) Gear											
166.02 (123.80)	9019 (40.12)	6.90 (11.11)	2173	2.20	12.273 (46.459)	0.516 (0.314)	13.53 (2.665)	197 (91.5)	59 (15.0)	75 (23.6)	28.93 (97.69)
50% of Pull at Maximum Power — Two Hours 9th (3A) Gear											
113.65 (84.75)	6013 (26.75)	7.09 (11.41)	2213	1.48	9.553 (36.161)	0.586 (0.357)	11.90 (2.344)	197 (91.7)	62 (16.7)	79 (25.8)	28.73 (97.00)
50% of Pull at Reduced Engine Speed — Two Hours 12th (3D) Gear											
113.62 (84.73)	6012 (26.74)	7.09 (11.41)	1289	1.26	8.112 (30.709)	0.498 (0.303)	14.01 (2.759)	195 (90.3)	62 (16.7)	81 (27.2)	28.72 (96.98)
MAXIMUM POWER IN SELECTED GEARS											
180.39 (134.52)	27180 (120.90)	2.49 (4.01)	2135	14.85	3rd (1C) Gear			197 (91.7)	58 (14.4)	67 (19.4)	28.81 (97.29)
200.33 (149.38)	24164 (107.48)	3.11 (5.00)	2098	9.09	4th (1D) Gear			197 (91.7)	57 (13.9)	69 (20.6)	28.74 (97.05)
203.77 (151.95)	22590 (100.48)	3.38 (5.44)	2099	7.76	5th (2A) Gear			198 (91.9)	58 (14.4)	70 (21.1)	28.74 (97.05)
208.08 (155.16)	18629 (82.86)	4.19 (6.74)	2097	5.44	6th (2B) Gear			196 (91.1)	60 (15.6)	73 (22.8)	28.74 (97.05)
208.32 (155.34)	15456 (68.75)	5.05 (8.13)	2098	4.24	7th (2C) Gear			196 (91.1)	59 (15.0)	71 (21.7)	28.74 (97.05)
207.62 (154.83)	12805 (56.96)	6.08 (9.79)	2099	3.50	8th (2D) Gear			197 (91.4)	55 (12.8)	63 (17.2)	28.74 (97.05)
211.70 (157.86)	12025 (53.49)	6.60 (10.62)	2097	3.00	9th (3A) Gear			196 (91.1)	60 (15.6)	74 (23.3)	28.74 (97.05)
211.04 (157.37)	9849 (43.81)	8.04 (12.93)	2097	2.50	10th (3B) Gear			196 (90.8)	56 (13.3)	67 (19.4)	28.74 (97.05)

Department of Agricultural Engineering

Dates of Test: April 10 to 18, 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) 0.8380 Fuel weight 6.977 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 5.389 gal (20.400 l) Drained from motor 4.597 gal (17.403 l) Transmission and final drive lubricant White Farm Equipment Company Universal Fluid Total time engine was operated 36.5 hours.

ENGINE: Make Caterpillar Diesel Type six cylinder vertical with turbocharger and intercooler Serial No. 64Z02249 Crankshaft lengthwise Rated rpm 1700 to 2100 Bore and stroke 4.75" × 6.00" (120.7 mm × 152.4 mm) Compression ratio 15.0 to 1 Displacement 638 cu in (10457 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements with aspirator Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter one paper cartridge and water separator Muffler vertical Cooling medium temperature control one thermostat.

CHASSIS: Type four wheel drive with duals Serial No. 302705-432 Tread width rear 63" (1600 mm) to 132" (3353 mm) front 63" (1600 mm) to 132" (3353 mm) Wheel base 129.5" (3289 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 72.8" (1850 mm) Vertical distance above roadway 39.5" (1003 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 (4) range operator controlled powershift Advertised speeds mph (km/h) first 1.9 (3.1) second 2.3 (3.7) third 2.7 (4.4) fourth 3.3 (5.3) fifth 3.5 (5.7) sixth 4.3 (6.8) seventh 5.1 (8.2) eighth 6.0 (9.7) ninth 6.5 (10.5) tenth 7.9 (12.7) eleventh 9.4 (15.2) twelfth 11.2 (18.1) thirteenth 12.0 (19.4) fourteenth 14.6 (23.4) fifteenth 17.3 (27.9) sixteenth 20.7 (33.3) reverse 3.0 (4.9), 3.6 (5.9), 4.3 (7.0), 5.2 (8.3) Clutch multiple wet disc hydraulically power activated 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 291" (7.39 m) left 291" (7.39 m) Turning space diameter (on con-

LUGGING ABILITY IN 9th (3A) GEAR

Crankshaft Speed rpm	2097	1888	1672	1466	1247	1046
Pull—lbs (kN)	12025 (53.49)	14031 (62.41)	15062 (67.00)	15532 (69.09)	15399 (68.50)	13873 (61.71)
Increase in Pull %	0	17	25	29	28	15
Power—Hp (kW)	211.70 (157.86)	221.01 (164.81)	209.47 (156.20)	189.02 (140.95)	159.43 (118.89)	121.08 (90.29)
Speed—Mph (km/h)	6.60 (10.62)	5.91 (9.51)	5.22 (8.39)	4.56 (7.34)	3.88 (6.25)	3.27 (5.27)
Slip %	3.00	3.66	3.99	4.16	3.99	3.83

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	79.0
75% of Pull at Maximum Power—Ten Hours	78.5
50% of Pull at Maximum Power—Two Hours	78.5
50% of Pull at Reduced Engine Speed—Two Hours	75.0
Bystander in 15th (4C) gear	90.5

POWER TAKE-OFF PERFORMANCE at 1900 RPM

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 —916 rpm)								
251.54 (187.57)	1900	14.420 (54.587)	0.400 (0.243)	17.44 (3.437)	196 (91.2)	68 (20.0)	76 (24.5)	28.93 (97.68)

POWER TAKE-OFF PERFORMANCE at 1700 RPM

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 —820 rpm)								
241.00 (179.72)	1701	13.606 (51.505)	0.394 (0.240)	17.71 (3.490)	197 (91.7)	66 (19.1)	76 (24.6)	28.94 (97.73)

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 20.8-38; 8; inner
14 (95) outer 12 (85)

None
None

Four 20.8-38; 8; inner
14 (95) outer 12 (85)

None
None

14 in (355 mm)

13415 lb (6085 kg)
17235 lb (7818 kg)
30650 lb (13903 kg)

crete surface without brake) right 604" (15.34 m) left 604" (15.34 m) **Power take-off** 1000 rpm at 2073 engine rpm **Unladen tractor mass** 30215 lbs (13705 kg).

REPAIRS AND ADJUSTMENTS: During the preliminary PTO test a leak developed in the PTO carrier bearing lubricator tube. This tube was replaced and test continued.

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 135°F (57.2°C). Eight gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is as true and correct report of official Tractor Test No. 1559, June 19, 1985.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

L. L. BASHFORD

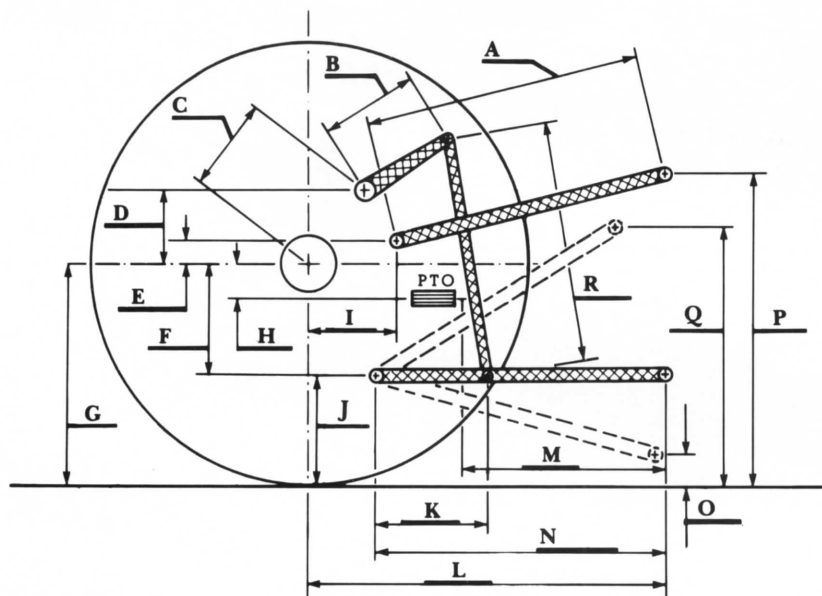
T. L. THOMPSON

Board of Tractor Test Engineers

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi (kPa)	2275 (15690)	
Location	remote outlet	
Hydraulic oil temperature °F (°C)	166 (74)	
Location	pump inlet	
	Maximum Lift Capacity	Lift Capacity for Transport
QUICK ATTACH	yes	
CATEGORY	III	*not measured
LOAD lbs (kg)	12504 (5672)	
TIME sec	5.35	
HITCH POINT MOVEMENT in (mm)		
Lowest position	10.7 (272)	
Top of timed range	36.7 (932)	
Highest position	40.2 (1021)	
LOAD CG MOVEMENT in (mm)		
Lowest position	11.8 (300)	
Top of timed range	36.5 (927)	
Highest position	40.3 (1024)	

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



Hitch Dimensions as Tested — No Load

	inch	mm
A	29.8	756
B	23.8	605
C	19.8	503
D	18.3	465
E	14.0	356
F	10.1	257
G	33.2	843
H	3.0	76
I	19.8	503
J	23.1	587
K	24.5	622
L	48.4	1229
L'	53.0	1346
M	29.0	737
N	42.5	1080
O	8.0	203
P	46.6	1184
Q	40.6	1032
R	40.9	1038

L' to end of quick attach



White Farm Equipment 4-270 Diesel

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