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Test 1375: White Field Boss 4-175 Diesel 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1375 — WHITE 4-175 FIELD BOSS DIESEL ALSO WHITE FARM EQUIPMENT 4-175 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—1023 rpm)									
151.69 (113.12)	2600	9.920 (37.551)	0.457 (0.278)	15.29 (3.012)	177 (80.7)	54 (12.3)	75 (23.9)	29.297 (98.930)	
Standard Power Take-off Speed (1000 rpm) — One Hour									
151.29 (112.82)	2542	9.759 (36.942)	0.450 (0.274)	15.50 (3.054)	177 (80.8)	54 (12.2)	75 (23.9)	29.293 (98.916)	
VARYING POWER AND FUEL CONSUMPTION—Two Hours									
133.45 (99.51)	2694	9.075 (34.353)	0.475 (0.289)	14.71 (2.897)	177 (80.3)	55 (12.5)	77 (24.7)	..... .....
0.00 (0.00)	2857	3.841 (14.540)	..... .....	..... .....	174 (78.6)	54 (11.9)	75 (23.6)	..... .....
69.15 (51.57)	2786	6.325 (23.943)	0.639 (0.388)	10.93 (2.154)	175 (79.4)	54 (11.9)	76 (24.2)	..... .....
151.99 (113.34)	2601	9.900 (37.476)	0.455 (0.277)	15.35 (3.024)	178 (81.1)	54 (12.2)	76 (24.2)	..... .....
34.90 (26.02)	2823	5.169 (19.567)	1.034 (0.629)	6.75 (1.330)	174 (78.9)	54 (12.2)	75 (23.9)	..... .....
102.09 (76.13)	2746	7.691 (29.114)	0.526 (0.320)	13.27 (2.615)	175 (79.4)	54 (12.2)	75 (23.9)	..... .....
Av	81.93	2751	7.000	0.597	11.70	175	54	75	29.297
Av	(61.10)		(26.498)	(0.363)	(2.306)	(79.6)	(12.2)	(24.1)	(98.930)

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 8th (3D) Gear											
127.15 (94.82)	10107 (44.96)	4.72 (7.59)	2600	3.25	9.811 (37.138)	0.539 (0.328)	12.96 (2.553)	174 (78.9)	52 (10.8)	64 (17.8)	28.925 (97.675)
75% of Pull at Maximum Power—Ten Hours 8th (3D) Gear											
103.70 (77.33)	7789 (34.65)	4.99 (8.03)	2727	2.33	8.654 (32.760)	0.583 (0.354)	11.98 (2.361)	173 (78.5)	46 (7.9)	57 (14.1)	29.108 (98.293)
50% of Pull at Maximum Power—Two Hours 8th (3D) Gear											
71.67 (53.45)	5246 (23.33)	5.12 (8.25)	2780	1.69	7.161 (27.108)	0.698 (0.424)	10.01 (1.972)	172 (77.8)	44 (6.4)	50 (10.0)	29.070 (98.165)
50% of Pull at Reduced Engine Speed—Two Hours 14th (5D) Gear											
70.88 (52.85)	5198 (23.12)	5.11 (8.23)	1465	1.65	4.816 (18.230)	0.474 (0.289)	14.72 (2.899)	172 (77.5)	49 (9.4)	62 (16.4)	29.030 (98.030)
MAXIMUM POWER IN SELECTED GEARS											
109.98 (82.02)	19905 (88.54)	2.07 (3.33)	2688	14.68	3rd (1O) Gear			171 (76.9)	36 (2.2)	37 (2.8)	29.050 (98.097)
125.60 (93.66)	16319 (72.59)	2.89 (4.65)	2599	6.34	4rd (2U) Gear			175 (79.2)	51 (10.6)	62 (16.7)	28.910 (97.625)
130.41 (97.25)	13761 (61.21)	3.55 (5.72)	2600	4.61	5th (2D) Gear			175 (79.2)	50 (10.0)	60 (15.6)	28.910 (97.625)
129.13 (96.29)	12535 (55.76)	3.86 (6.22)	2599	4.15	6th (3U) Gear			175 (79.2)	50 (10.0)	60 (15.6)	28.910 (97.625)
129.16 (96.31)	11292 (50.23)	4.29 (6.90)	2599	3.60	7th (2O) Gear			175 (79.2)	50 (10.0)	60 (15.6)	28.910 (97.625)
130.59 (97.38)	10385 (46.19)	4.72 (7.59)	2598	3.21	8th (3D) Gear			174 (78.9)	48 (8.9)	58 (14.4)	28.910 (97.625)
131.93 (98.38)	9412 (41.86)	5.26 (8.46)	2600	2.82	9th (4U) Gear			175 (79.2)	51 (10.6)	62 (16.7)	28.910 (97.625)
127.69 (95.22)	8445 (37.56)	5.67 (9.13)	2599	2.50	10th (3O) Gear			175 (79.2)	51 (10.6)	62 (16.7)	28.920 (97.625)
133.72 (99.72)	7843 (34.89)	6.39 (10.29)	2598	2.34	11th (4D) Gear			175 (79.4)	51 (10.6)	63 (17.2)	28.910 (97.625)
129.88 (96.85)	6511 (28.96)	7.48 (12.04)	2599	2.01	12th (5U) Gear			175 (79.4)	51 (10.6)	63 (17.2)	28.910 (97.625)
130.41 (97.25)	6375 (28.36)	7.67 (12.35)	2600	1.85	13th (4O) Gear			174 (79.2)	51 (10.6)	63 (17.2)	28.910 (97.625)
128.80 (96.05)	5317 (23.65)	9.08 (14.62)	2600	1.53	14th (5D) Gear			175 (79.2)	51 (10.6)	63 (17.2)	28.910 (97.625)

Department of Agricultural Engineering

Dates of Test: October 24 — November 6, 1980

Manufacturer: WHITE FARM EQUIPMENT COMPANY, 2625 Butterfield Road, Oak Brook, Illinois 60521

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 47.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8385 **Fuel weight** 6.982 lbs/gal (0.837 kg/l) **Oil SAE 30 API service classification** CB/CD (DS) **To motor** 2.707 gal (10.248 l) **Drained from motor** 1.790 gal (6.776 l) **Transmission and final drive lubricant** White Farm Equipment Universal tractor Hydraulic transmission Fluid **Hydraulic lubricant** White Farm Equipment Co. type 55 Hydraulic Oil **Total time engine was operated** 40.0 hours

ENGINE: Make Caterpillar Diesel **Type** Eight cylinder vee **Serial No.** 90N 43983 **Crankshaft** lengthwise **Rated rpm** 2600 **Bore and stroke** 4.5" x 5.0" (114.3 mm x 127 mm) **Compression ratio** 16.5 to 1 **Displacement** 636 cu in (10424 ml) **Cranking system** 12 volt **Lubrication pressure** **Air cleaner** two paper elements with aspirator **Oil filter** two full flow cartridges **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and hydraulic oil **Fuel Filter** one paper cartridge **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** two thermostats.

CHASSIS: **Type** Four wheel drive with duals **Serial No.** 292296-422 **Tread width** rear 60" (1524 mm) to 108" (2743 mm) front 60" (1524 mm) to 108" (2743 mm) **Wheel base** 118.4" (3007 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 77.6" (1971 mm) Vertical distance above roadway 37.4" (949 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 power shift **Advertised speeds mph (km/h)** first 1.6 (2.6) second 1.9 (3.0) third 2.3 (3.7) fourth 3.0 (4.8) fifth 3.7 (5.9) sixth 3.9 (6.2) seventh 4.4 (7.0) eighth 4.8 (7.7) ninth 5.3 (8.5) tenth 5.7 (9.2) eleventh 6.4 (10.3) twelfth 7.5 (12.1) thirteenth 7.7 (12.4) fourteenth 9.0 (14.5) fifteenth 10.8 (17.4) sixteenth 13.1 (21.1) seventeenth 15.9 (25.6) eighteenth 19.0 (30.6) reverse 1.9 (3.0), 2.3 (3.7), 2.8 (4.5), 4.8 (7.7), 5.8 (9.3), 6.9 (11.1) **Clutch** dry single plate operated by foot pedal **Brakes** dry triple disc hydraulically power actuated and operated by one foot pedal and hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 218.3" (5.54 m) left 216.8" (5.51 m) **Turning space diameter** (on concrete surface without brake) right 458.6" (11.65 m) left 455.6" (11.57 m) **Power take-off** 1000 rpm at 2542 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

LUGGING ABILITY IN 8th (3D) GEAR

Crankshaft Speed rpm	2598	2348	2075	1816	1553	1297	1031	795
Pull—lbs (kN)	10385 (46.19)	11166 (49.67)	11881 (52.85)	12757 (56.75)	13595 (60.47)	13961 (62.10)	14028 (62.40)	13057 (58.08)
Increase in Pull %	0	8	14	23	31	34	35	26
Power—Hp (kW)	130.59 (97.38)	126.49 (94.32)	118.58 (88.42)	111.02 (82.78)	100.73 (75.11)	86.26 (64.33)	68.79 (51.29)	49.53 (36.93)
Speed—Mph (km/h)	4.72 (7.59)	4.25 (6.84)	3.74 (6.02)	3.26 (5.25)	2.78 (4.47)	2.32 (3.73)	1.84 (2.96)	1.42 (2.29)
Slip %	3.21	3.68	3.84	4.15	4.46	4.76	4.76	4.46

TRACTOR SOUND LEVEL WITH CAB dB(A)

Maximum Available Power—Two Hours	81.0
75% of Pull at Maximum Power—Ten Hours	81.0
50% of Pull at Maximum Power—Two Hours	80.5
50% of Pull at Reduced Engine Speed—Two Hours	77.5
Bystander in 18th (60) gear	94.0

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; 12 (85)
None
None
Four 18.4-38; 8; 12 (85)
None
None
20.5 in (520 mm)
7590 lb (3443 kg)
12830 lb (5820 kg)
20420 lb (9263 kg)

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test code or official Nebraska test procedure. Temperature at injection pump was 156°F (68.6°C). Twelve gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1375**.

LOUIS I. LEVITICUS

Engineer-in-Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



White 4-175 Field Boss Diesel

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