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Test 1487: White Farm Equipment-Iseki 2-88 Diesel 18-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1487—WHITE FARM EQUIPMENT 2-88 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—1007 rpm)									
86.78 (64.71)	2200	5.524 (20.911)	0.446 (0.271)	15.71 (3.095)	185 (84.9)	70 (21.1)	75 (23.8)	28.943 (97.737)	
• VARYING POWER AND FUEL CONSUMPTION—Two Hours									
75.83 (56.55)	2262	4.930 (18.662)	0.456 (0.277)	15.38 (3.030)	182 (83.6)	70 (21.1)	76 (24.2)	..... .....
0.00 (0.00)	2362	1.755 (6.643)	..... .....	..... .....	172 (78.1)	70 (20.8)	74 (23.6)	..... .....
38.61 (28.79)	2304	3.218 (12.181)	0.584 (0.355)	12.00 (2.364)	176 (79.7)	69 (20.6)	75 (23.9)	..... .....
87.61 (65.33)	2200	5.568 (21.077)	0.446 (0.271)	15.74 (3.100)	185 (85.0)	68 (20.3)	74 (23.6)	..... .....
19.59 (14.61)	2339	2.495 (9.445)	0.893 (0.543)	7.85 (1.547)	174 (78.6)	69 (20.6)	75 (23.9)	..... .....
57.08 (42.56)	2270	3.997 (15.130)	0.491 (0.299)	14.28 (2.813)	177 (80.6)	69 (20.6)	76 (24.2)	..... .....
Av Av	46.45 (34.64)	2290	3.660 (13.855)	0.552 (0.336)	12.69 (2.500)	178 (80.9)	69 (20.7)	75 (23.9)	28.963 (97.805)

DRAWBAR PERFORMANCE (Front Wheel Drive Disengaged)

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											
73.81 (55.04)	4253 (18.92)	6.51 (10.48)	2200	4.16	5.421 (20.520)	0.515 (0.313)	13.62 (2.682)	187 (86.1)	73 (22.5)	84 (28.6)	29.030 (98.030)
75% of Pull at Maximum Power—Ten Hours 11th (4D) Gear											
58.81 (43.85)	3228 (14.36)	6.83 (10.99)	2281	3.14	4.615 (17.469)	0.550 (0.335)	12.74 (2.510)	184 (84.2)	71 (21.8)	85 (29.4)	28.987 (97.885)
50% of Pull at Maximum Power—Two Hours 11th (4D) Gear											
40.22 (29.99)	2153 (9.57)	7.01 (11.28)	2318	2.16	3.727 (14.108)	0.650 (0.395)	10.79 (2.126)	180 (81.9)	68 (19.7)	82 (27.5)	28.915 (97.642)
50% of Pull at Reduced Engine Speed—Two Hours 15th (5O) Gear											
40.21 (29.98)	2152 (9.57)	7.01 (11.28)	1383	2.21	2.996 (11.340)	0.522 (0.318)	13.42 (2.644)	186 (85.6)	71 (21.4)	92 (33.1)	28.905 (97.608)

MAXIMUM POWER IN SELECTED GEARS

54.58 (40.70)	9486 (42.20)	2.16 (3.47)	2272	14.60	3rd (1O) Gear			180 (82.2)	64 (17.8)	73 (22.8)	28.910 (97.625)
69.26 (51.64)	9192 (40.89)	2.83 (4.55)	2200	13.48	4th (2U) Gear			183 (83.9)	65 (18.3)	75 (23.9)	28.910 (97.625)
72.93 (54.38)	7665 (34.10)	3.57 (5.74)	2199	9.22	5th (2D) Gear			185 (85.0)	72 (22.2)	78 (25.6)	29.030 (98.030)
71.75 (53.50)	7179 (31.93)	3.75 (6.03)	2200	8.26	6th (3U) Gear			184 (84.2)	71 (21.7)	77 (25.0)	29.030 (98.030)
73.11 (54.52)	6246 (27.78)	4.39 (7.06)	2199	6.97	7th (2O) Gear			184 (84.4)	71 (21.7)	76 (24.4)	29.020 (97.996)
73.37 (54.71)	5977 (26.58)	4.60 (7.41)	2199	6.35	8th (3D) Gear			183 (83.6)	71 (21.7)	75 (23.9)	29.020 (97.996)
73.69 (54.95)	5177 (23.03)	5.34 (8.59)	2199	5.41	9th (4U) Gear			183 (83.6)	71 (21.7)	74 (23.3)	29.020 (97.996)
72.61 (54.15)	4855 (21.60)	5.61 (9.03)	2199	5.01	10th (3O) Gear			183 (83.9)	70 (21.1)	73 (22.8)	29.020 (97.996)
74.67 (55.68)	4304 (19.14)	6.51 (10.47)	2200	4.37	11th (4D) Gear			183 (83.6)	68 (20.0)	71 (21.7)	29.010 (97.962)
72.60 (54.14)	3584 (15.94)	7.60 (12.23)	2199	3.63	12th (5U) Gear			185 (85.0)	72 (22.2)	79 (26.1)	29.030 (98.030)
73.08 (54.49)	3479 (15.47)	7.88 (12.68)	2200	3.38	13th (4O) Gear			185 (84.7)	72 (22.2)	79 (26.1)	29.040 (98.064)
72.74 (54.25)	2961 (13.17)	9.21 (14.83)	2199	2.71	14th (5D) Gear			186 (85.3)	72 (22.2)	80 (26.7)	29.040 (98.064)

Department of Agricultural Engineering

Dates of Test: August 22 to September 7, 1983

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8419 Fuel weight 7.010 lbs/gal (0.840 kg/l) Oil White Farm Equipment Company Supreme Blend SAE 30 API service classification CC-CD, SD-SF To motor 3.921 gal (14.843 l) Drained from motor 3.170 gal (11.999 l) Transmission and final drive lubricant White Farm Equipment Company Universal fluid Front axle lubricant SAE 80-90 multi-purpose gear lubricant Total time engine was operated 75.0 hours.

ENGINE: Make Perkins Diesel Type six cylinder vertical Serial No. TW70008U654266H Crankshaft lengthwise Rated rpm 2200 Bore and stroke 3.875" × 5.00" (98.4 mm × 127 mm) Compression ratio 16 to 1 Displacement 354 cu in (5802 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements with aspirator Oil filter one full flow paper cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and hydraulic shift oil Fuel filter two paper elements and water separator Muffler vertical Cooling medium temperature control two thermostats.

CHASSIS: Type front wheel assist Serial No. 301650-441 Tread width rear 63" (1600 mm) to 111" (2820 mm) front 66" (1676 mm) to 80" (2032 mm) Wheel base 86.3" (2191 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 34.9" (886 mm) Vertical distance above roadway 42.0" (1067 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 1.6 (2.6) second 2.0 (3.2) third 2.3 (3.7) fourth 3.1 (5.0) fifth 3.8 (6.1) sixth 3.9 (6.3) seventh 4.5 (7.2) eighth 4.7 (7.6) ninth 5.4 (8.7) tenth 5.7 (9.2) eleventh 6.5 (10.5) twelfth 7.6 (12.2) thirteenth 7.8 (12.6) fourteenth 9.1 (14.6) fifteenth 10.9 (17.5) sixteenth 13.1 (21.1) seventeenth 15.7 (25.3) eighteenth 18.9 (30.4) reverse 1.8 (2.9), 2.2 (3.5), 2.6 (4.2), 4.4 (7.1), 5.3 (8.5), 6.4 (10.3) Clutch single dry disc operated by foot pedal Brakes multiple dry disc hydraulically power actuated and operated by two foot pedals which can be locked together and mechanically by hand lever Steering hydrostatic Turning radius (on concrete surface with brake applied) right 195" (4.95 m) left 195" (4.95 m) (on concrete surface without brake) right 233" (5.92 m) left 233" (5.92 m) Turning space diameter (on concrete surface with brake applied) right 406" (10.31 m) left 406" (10.31 m) (on concrete surface without brake) right 482" (12.24 m) left 482" (12.24 m) Power take-off 540 rpm at 2192 engine rpm and 1007 rpm at 2200 engine rpm.

LUGGING ABILITY IN 11th (4D) GEAR

Crankshaft Speed rpm	2200	1982	1757	1539	1310	1094
Pull—lbs (kN)	4304 (19.14)	4614 (20.52)	4756 (21.16)	4837 (21.52)	4934 (21.95)	4923 (21.90)
Increase in Pull %	0	7	11	12	15	14
Power—Hp (kW)	74.67 (55.68)	71.87 (53.60)	65.50 (48.84)	58.31 (43.48)	50.57 (37.71)	42.09 (31.39)
Speed—Mph (km/h)	6.51 (10.47)	5.84 (9.40)	5.16 (8.31)	4.52 (7.27)	3.84 (6.19)	3.21 (5.16)
Slip %	4.37	4.61	4.93	5.09	5.25	5.25

TRACTOR SOUND LEVEL WITH CAB	dB(A)	Front Wheel Drive Disengaged dB(A)
Maximum Available Power—Two Hours	75.0	75.5
75% of Pull at Maximum Power—Ten Hours		75.5
50% of Pull at Maximum Power—Two Hours		74.0
50% of Pull at Reduced Engine Speed—Two Hours		73.5
Bystander in 17th (6D) gear		88.0

DRAWBAR PERFORMANCE (Front Wheel Drive Engaged)

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											
73.38 (54.72)	4121 (18.33)	6.68 (10.75)	2200	2.72	5.421 (20.520)	0.518 (0.315)	13.54 (2.667)	189 (86.9)	72 (22.2)	88 (30.8)	29.015 (97.979)

MAXIMUM POWER IN SELECTED GEARS

60.50 (45.12)	12632 (56.19)	1.80 (2.89)	2254	14.93	2nd (1D) Gear			180 (82.2)	63 (17.2)	70 (21.1)	28.910 (97.625)
74.11 (55.26)	4167 (18.53)	6.67 (10.73)	2201	2.77	11th (4D) Gear			182 (83.3)	67 (19.4)	69 (20.6)	29.000 (97.929)

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)

Tested Without Ballast

Two 20.8-38; 8; 16 (110)
None
None
Two 16.9-26; 8; 16 (110)
None
None

Height of Drawbar

21 in (535 mm)

Static Weight with Operator—Rear	8115 lb (3681 kg)
—Front	5500 lb (2495 kg)
—Total	13615 lb (6176 kg)



White Farm Equipment 2-88 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
Irvin T. Omtvedt, Dean and Director

REPAIRS and ADJUSTMENTS: During the 2 HR maximum drawbar test, it was found that the horsepower increased due to an injection pump setting change. All tests were rerun after pump was readjusted.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 157°F (69.5°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 No. 1487.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers