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## Test 1462: Versatile 1150 Diesel 8-Speed

Nebraska Tractor Test Lab

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# NEBRASKA TRACTOR TEST 1462 — VERSATILE 1150 DIESEL 8 SPEED

## DRAWBAR PERFORMANCE AT 2100 RPM

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	
<b>Maximum Available Power—Two Hours 4th (1-4) Gear</b>											
390.69 (291.34)	24626 (109.54)	5.95 (9.57)	2102	3.52	24.663 (93.360)	0.440 (0.268)	15.84 (3.121)	174 (78.9)	36 (1.9)	44 (6.7)	28.820 (97.321)
<b>75% of Pull at Maximum Power—Ten Hours 4th (1-4) Gear</b>											
318.01 (237.14)	19015 (84.58)	6.27 (10.09)	2204	2.86	21.720 (82.219)	0.476 (0.290)	14.64 (2.884)	173 (78.1)	45 (7.2)	47 (8.2)	28.804 (97.267)
<b>50% of Pull at Maximum Power—Two Hours 4th (1-4) Gear</b>											
217.57 (162.24)	12677 (56.39)	6.44 (10.36)	2242	1.99	17.619 (66.695)	0.565 (0.344)	12.35 (2.433)	171 (77.2)	32 (0.0)	35 (1.4)	28.880 (97.523)
<b>50% of Pull at Reduced Engine Speed—Two Hours 6th (2-2) Gear</b>											
217.92 (162.51)	12678 (56.39)	6.45 (10.37)	1587	1.82	13.909 (52.651)	0.445 (0.271)	15.67 (3.086)	172 (77.5)	42 (5.3)	51 (10.3)	28.840 (97.388)

## MAXIMUM POWER IN SELECTED GEARS

Power—Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Gear	Fuel Consumption 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	Barom. inch Hg (kPa)
354.07 (264.03)	43219 (192.25)	3.07 (4.94)	2147	14.59	2nd (1-2) Gear				175 (79.2)	44 (6.7)	54 (12.2)	28.820 (97.321)
396.17 (295.43)	31095 (138.32)	4.78 (7.69)	2098	4.78	3rd (1-3) Gear				176 (79.7)	41 (5.0)	50 (10.0)	28.870 (97.490)
400.29 (298.50)	25353 (112.78)	5.92 (9.53)	2097	3.76	4th (1-4) Gear				175 (79.2)	41 (5.0)	50 (10.0)	28.890 (97.557)
399.16 (297.65)	21807 (97.00)	6.86 (11.05)	2099	3.12	5th (2-1) Gear				174 (78.6)	41 (5.0)	50 (10.0)	28.880 (97.523)
393.77 (293.63)	17377 (77.29)	8.50 (13.68)	2103	2.31	6th (2-2) Gear				174 (78.9)	41 (5.0)	50 (10.0)	28.870 (97.490)

## LUGGING ABILITY IN 4th (1-4) GEAR

Crankshaft Speed rpm	2097	1894	1689	1470	1267	1059
Pull—lbs (kN)	25353 (112.78)	29219 (129.97)	33429 (148.70)	36919 (164.22)	36885 (164.07)	36092 (160.55)
Increase in Pull %	0	15	32	46	45	42
Power—Hp (kW)	400.29 (298.50)	413.54 (308.38)	417.69 (311.47)	397.22 (296.20)	341.21 (254.44)	279.89 (208.71)
Speed—Mph (km/h)	5.92 (9.53)	5.31 (8.54)	4.69 (7.54)	4.03 (6.49)	3.47 (5.58)	2.91 (4.68)
Slip %	3.76	4.47	5.40	6.30	6.45	6.30

## 1700 RPM 1900 RPM 2100 RPM

TRACTOR SOUND LEVEL WITH CAB	dB(A)	dB(A)	dB(A)
Maximum Available Power—Two Hours	79.5	81.0	81.5
75% of Pull at Maximum Power—Ten Hours			80.0
50% of Pull at Maximum Power—Two Hours			79.5
50% of Pull at Reduced Engine Speed—Two Hours			76.5
Bystander in 8th (2-4) gear			91.0

## SUPPLEMENTARY TESTS

### DRAWBAR PERFORMANCE AT 1900 RPM

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	
<b>Maximum Available Power—Two Hours 4th (1-4) Gear</b>											
402.73 (300.32)	28383 (126.25)	5.32 (8.56)	1901	4.43	24.358 (92.206)	0.422 (0.257)	16.53 (3.257)	174 (78.6)	41 (4.7)	48 (8.6)	28.815 (97.304)

## MAXIMUM POWER IN SELECTED GEARS

Power—Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Gear	Fuel Consumption 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	Barom. inch Hg (kPa)
351.92 (262.43)	43052 (191.50)	3.07 (4.93)	2150	14.90	2nd (1-2) Gear				175 (79.2)	44 (6.7)	54 (12.2)	28.820 (97.321)
407.95 (304.21)	35870 (159.56)	4.26 (6.86)	1900	6.15	3rd (1-3) Gear				175 (79.4)	41 (5.0)	50 (10.0)	28.860 (97.456)
414.31 (308.95)	29205 (129.91)	5.32 (8.56)	1900	4.39	4th (1-4) Gear				174 (78.6)	41 (5.0)	50 (10.0)	28.880 (97.523)
414.81 (309.32)	25219 (112.18)	6.17 (9.93)	1897	3.60	5th (2-1) Gear				175 (79.2)	41 (5.0)	50 (10.0)	28.870 (97.490)
415.21 (309.62)	20385 (90.68)	7.64 (12.29)	1899	2.80	6th (2-2) Gear				175 (79.2)	41 (5.0)	50 (10.0)	28.870 (97.490)

## Department of Agricultural Engineering

**Dates of Test:** November 11-19, 1982

**Manufacturer:** VERSATILE FARM EQUIPMENT CO., 1260 Clarence Avenue, Winnipeg, Manitoba Canada R3T 1T3

**FUEL, OIL AND TIME:** Fuel No. 2 Diesel Cetane No. 46.6 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° (15°/15°)** 0.8376 **Fuel weight** 6.974 lbs/gal (0.836 kg/l) **Oil SAE 15W-40 API service classification** SE-SF, CC-CD **To motor** 9.293 gal (35.177 l) **Drained from motor** 8.658 gal (32.775 l) **Transmission and hydraulic lubricant** Hydraul 56 fluid or equivalent **Final drive lubricant** SAE 85W-140 **Total time engine was operated** 35.5 hours.

**ENGINE:** Make Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 31126712 **Crankshaft** lengthwise **Rated rpm** 1750 to 2100 **Bore and stroke** 6.25" × 6.25" (158.8 mm × 158.8 mm) **Compression ratio** 15.5 to 1 **Displacement** 1150 cu in (18848 ml) **Starting system** 24 volt **Lubrication pressure** **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper cartridge **Muffler** vertical **Cooling medium temperature control** two thermostats.

**CHASSIS:** **Type** four wheel drive with duals **Serial No.** 1150 82 201219 **Tread width** rear 83.1" (2110 mm) to 151" (3836 mm) front 83.1" (2110 mm) to 151" (3836 mm) **Wheel base** 140" (3560 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 91.8" (2333 mm) Vertical distance above roadway 45" (1143 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 **Advertised speeds mph (km/h)** first 3.0 (4.8) second 3.7 (6.0) third 5.3 (8.5) fourth 6.5 (10.5) fifth 7.4 (12.0) sixth 9.1 (14.6) seventh 13.0 (20.9) eighth 16.0 (25.7) reverse 3.5 (5.6), 4.3 (6.9), 6.1 (9.8), 7.5 (12.0) **Clutch** multiple dry disc operated by foot pedal **Brakes** caliper disc hydraulically operated by foot pedal **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 257" (6.53 m) left 257" (6.53 m) **Turning space diameter** (on concrete surface without brake) right 575" (14.61 m) left 575" (14.61 m) **Power take-off** none.

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

## DRAWBAR PERFORMANCE AT 1750 RPM

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 4th (1-4) Gear											
411.32 (306.72)	31691 (140.97)	4.87 (7.83)	1750	5.09	24.054 (91.053)	0.408 (0.248)	17.10 (3.369)	175 (79.2)	42 (5.6)	50 (10.0)	28.790 (97.220)

### MAXIMUM POWER IN SELECTED GEARS

352.07 (262.54)	42983 (191.20)	3.07 (4.94)	2149	14.65	2nd (1-2) Gear			175 (79.2)	44 (6.7)	54 (12.2)	28.820 (97.321)
401.98 (299.76)	39474 (175.59)	3.82 (6.15)	1748	8.50	3rd (1-3) Gear			176 (79.7)	41 (5.0)	50 (10.0)	28.860 (97.456)
418.37 (311.98)	32227 (143.35)	4.87 (7.83)	1750	5.09	4th (1-4) Gear			174 (78.9)	41 (5.0)	50 (10.0)	28.880 (97.523)
419.07 (312.50)	27772 (123.54)	5.66 (9.11)	1747	4.08	5th (2-1) Gear			175 (79.4)	41 (5.0)	50 (10.0)	28.870 (97.490)
420.03 (313.22)	22432 (99.78)	7.02 (11.30)	1752	3.12	6th (2-2) Gear			176 (79.7)	41 (5.0)	50 (10.0)	28.870 (97.490)

### TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
<b>Rear Tires</b>	—No., size, ply & psi (kPa)	Four 30.5L-32; 10; inner 14 (95) outer 12 (85)	Four 30.5L-32; 10; inner 14 (95) outer 12 (85)
Ballast	—Liquid (each) —Cast Iron (each)	1936 lb (878 kg) None	None None
<b>Front Tires</b>	—No., size, ply & psi (kPa)	Four 30.5L-32; 10; inner 14 (95) outer 12 (85)	Four 30.5L-32; 10; inner 14 (95) outer 12 (85)
Ballast	—Liquid (each inner) —Cast Iron (each)	1808 lb (820 kg) None	None None
<b>Height of Drawbar</b>		18 in (455 mm)	18 in (455 mm)
<b>Static Weight with Operator</b>	Rear	19835 lb (8997 kg)	12090 lb (5484 kg)
	Front	26665 lb (12095 kg)	23050 lb (10455 kg)
	Total	46500 lb (21092 kg)	35140 lb (15939 kg)

**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 111°F (43.9°C). Five 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. **1462.**

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



**Versatile 1150 Diesel**