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Test 1279: Versatile 875 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1279 — VERSATILE 875 DIESEL

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—1008 rpm)								
248.07 (184.99)	2100	16.061 (60.799)	0.450 (0.274)	15.45 (3.043)	180 (82.2)	62 (16.7)	76 (24.5)	28.930 (97.692)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
222.22 (165.71)	2214	15.460 (58.522)	0.483 (0.294)	14.37 (2.832)	178 (81.1)	62 (16.7)	78 (25.8)	..... .....
0.00 (0.00)	2328	5.530 (20.934)	..... .....	..... .....	173 (78.3)	63 (17.2)	80 (26.4)	..... .....
115.19 (85.89)	2294	10.698 (40.496)	0.645 (0.393)	10.77 (2.121)	175 (79.4)	62 (16.9)	79 (26.1)	..... .....
245.28 (182.91)	2100	15.930 (60.303)	0.451 (0.275)	15.40 (3.033)	180 (82.2)	62 (16.9)	80 (26.9)	..... .....
58.12 (43.34)	2311	8.185 (30.985)	0.979 (0.595)	7.10 (1.399)	174 (78.8)	64 (17.5)	82 (27.5)	..... .....
171.10 (127.59)	2270	13.241 (50.122)	0.538 (0.327)	12.92 (2.546)	175 (79.4)	62 (16.9)	80 (26.7)	..... .....
Av 135.32 Av (100.91)	2253	11.507 (43.560)	0.591 (0.359)	11.76 (2.316)	176 (79.9)	63 (17.0)	80 (26.6)	28.903 (97.602)

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 7th (2-3) Gear											
220.20 (164.21)	13410 (59.65)	6.16 (9.91)	2100	4.46	16.189 (61.283)	0.511 (0.311)	13.60 (2.679)	180 (82.2)	66 (18.6)	72 (22.2)	28.760 (97.118)
75% of Pull at Maximum Power—Ten Hours 7th (2-3) Gear											
186.11 (138.78)	10398 (46.25)	6.71 (10.80)	2262	3.39	15.153 (57.361)	0.566 (0.344)	12.28 (2.419)	175 (79.4)	60 (15.7)	68 (20.1)	28.760 (97.120)
50% of Pull at Maximum Power—Two Hours 7th (2-3) Gear											
126.61 (94.41)	6939 (30.86)	6.84 (11.01)	2286	2.51	12.178 (46.099)	0.668 (0.407)	10.40 (2.048)	172 (77.8)	53 (11.7)	62 (16.7)	28.940 (97.726)
50% of Pull at Reduced Engine Speed—Two Hours 10th (3-2) Gear											
126.59 (94.40)	6921 (30.78)	6.86 (11.04)	1354	2.27	8.742 (33.093)	0.480 (0.292)	14.48 (2.853)	175 (79.4)	58 (14.2)	70 (21.1)	28.915 (97.642)

MAXIMUM POWER IN SELECTED GEARS

198.91 (148.32)	24457 (108.79)	3.05 (4.91)	2118	14.93	3rd (1-3) Gear			165 (73.9)	51 (10.6)	58 (14.4)	28.940 (97.726)
213.82 (159.44)	21504 (95.65)	3.73 (6.00)	2101	9.57	4th (1-4) Gear			180 (82.2)	67 (19.4)	75 (23.9)	28.720 (96.983)
222.83 (166.17)	18593 (82.71)	4.49 (7.23)	2100	6.67	5th (2-1) Gear			180 (82.2)	67 (19.4)	75 (23.9)	28.730 (97.017)
226.91 (169.21)	16076 (71.51)	5.29 (8.52)	2098	5.34	6th (2-2) Gear			180 (82.2)	67 (19.4)	75 (23.9)	28.740 (97.051)
227.82 (169.89)	13859 (61.65)	6.16 (9.92)	2101	4.50	7th (2-3) Gear			180 (82.2)	67 (19.4)	74 (23.3)	28.750 (97.084)
227.79 (169.87)	11859 (52.75)	7.20 (11.59)	2099	3.81	8th (2-4) Gear			180 (82.2)	67 (19.4)	75 (23.9)	28.720 (96.983)
228.35 (170.28)	9393 (41.78)	9.12 (14.67)	2101	2.95	9th (3-1) Gear			180 (82.2)	67 (19.4)	76 (24.4)	28.710 (96.949)

Department of Agricultural Engineering

Dates of Test: June 3-8, 1978

Manufacturer: Versatile Manufacturing, Ltd.,
1260 Clarence Ave., Winnipeg, Manitoba R3T
1T3

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 50.4 (rating taken from oil company's
typical inspection data) **Specific gravity converted**
to 60°/60° (15°/15°) 0.8346 **Fuel weight** 6.949 lbs/
gal (0.835 kg/l) **Oil SAE 30 API service classifi-**
cation SB/SE - CA/CD **To motor** 16.899 gal
(63.970 l) **Drained from motor** 13.977 gal
(52.909 l) **Transmission lubricant** ESSO Hydraul
56 or equivalent **Final drive lubricant** SAE 90
Total time engine was operated 38.5 hours

ENGINE Make Cummins Diesel **Type** 6 cylin-
der vertical with turbocharger **Serial No.**
10706818 **Crankshaft** lengthwise **Rated rpm**
2100 **Bore and stroke** 5.5" × 6.0" (139.7 mm ×
152.4 mm) **Compression ratio** 14.1 to 1 **Dis-**
placement 855 cu in (14016 ml) **Cranking system**
12 volt **Lubrication** pressure **Air cleaner** pri-
mary and secondary paper elements with as-
pirator **Oil filter** one screw-on cartridge and one
by pass element **Oil cooler** engine coolant heat
exchanger for crankcase oil, separate radiators for
hydraulic and transmission oil **Fuel filter** two spin
on cartridges **Muffler** vertical **Cooling medium**
temperature control thermostat

CHASSIS: **Type** four-wheel drive with duals
Serial No. 87578052952 **Tread width** rear 72"
(1830 mm) and 120" (3048 mm) front 72" (1830 mm)
and 120" (3048 mm) **Wheel base** 130" (3300 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 80.0"
(2032 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 **Advertised speeds mph**
(km/h) first 2.6 (4.2) second 3.0 (4.8) third 3.5 (5.6)
fourth 4.1 (6.6) fifth 4.7 (7.6) sixth 5.5 (8.8)
seventh 6.3 (10.1) eighth 7.3 (11.7) ninth 9.3 (14.8)
tenth 10.7 (17.2) eleventh 12.3 (19.8) twelfth 14.3
(23.0) reverse 3.4 (5.5), 3.9 (6.3), 4.5 (7.2), 5.2
(8.4) **Clutch** two dry plates operated by foot ped-
als **Brakes** dual caliper disc operated hydraul-
ically by foot pedal and mechanically by hand
lever **Steering** hydrostatic and articulated
Turning radius (on concrete surface without
brake) right 216" (5.49 m) left 216" (5.49 m)
Turning space diameter (on concrete surface
without brake) right 472" (12.00 m) left 472" (12.00
m) **Power take-off** 1008 rpm at 2100 engine rpm.

LUGGING ABILITY IN RATED GEAR 7th (2-3)

Crankshaft Speed rpm	2101	1894	1678	1467	1256	1060
Pull—lbs (kN)	13859 (61.65)	15613 (69.45)	17745 (78.94)	19074 (84.84)	18166 (80.81)	16047 (71.38)
Increase in Pull %	0	13	28	38	31	16
Power—Hp (kW)	227.82 (169.89)	229.52 (171.15)	228.37 (170.30)	212.75 (158.65)	174.12 (129.84)	130.62 (97.41)
Speed—Mph (km/h)	6.16 (9.92)	5.51 (8.87)	4.83 (7.77)	4.18 (6.73)	3.59 (5.78)	3.05 (4.91)
Slip %	4.50	5.11	6.30	7.18	6.60	5.71

TRACTOR SOUND LEVEL WITH CAB

dB(A)

Maximum Available Power—Two Hours	84.0
75% of Pull at Maximum Power—Ten Hours	84.5
50% of Pull at Maximum Power—Two Hours	84.0
50% of Pull at Reduced Engine Speed—Two Hours	80.0
Bystander in 12th (3-4) gear	89.5

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Four 18.4-38; 6; inner 14 (95) outer 12 (80)	Four 18.4-38; 6; inner 14 (95) outer 12 (80)
Ballast	—Liquid (each) —Cast Iron (each)	1245 lb (565 kg) None	None None
Front Tires	—No., size, ply & psi (kPa)	Four 18.4-38; 6; inner 14 (95) outer 12 (80)	Four 18.4-38; 6; inner 14 (95) outer 12 (80)
Ballast	—Liquid (each) —Cast Iron (each)	None None	None None
Height of Drawbar		18 in (460 mm)	18 in (460 mm)
Static Weight with Operator—Rear		14480 lb (6568 kg)	9500 lb (4309 kg)
—Front		15020 lb (6813 kg)	15020 lb (6813 kg)
—Total		29500 lb (13381 kg)	24520 lb (11122 kg)

REPAIRS and ADJUSTMENTS: Fuel filters were changed during preliminary PTO test. Transmission oil filter seal developed a leak after PTO test. This was repaired and test continued.

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 139°F (59.4°C). Seven 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 1279.

LOUIS I. LEVITICUS

Engineer-in Charge

G. W. STEINBRUEGGE, Chairman

W. E. SPLINTER

K. VON BARGEN

Board of Tractor Test Engineers



Versatile 875 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
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