

Tractor Test and Power Museum, The Lester F. Larsen

UNL Larsen Tractor Museum Archives

University of Nebraska - Lincoln

Year 1981

Test 1414: Steiger Bearcat III ST-225
Diesel (S/N 109-00328 and higher) Also
Steiger Bearcat IV CM-225 Diesel
20-Speed

Tractor Museum
University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

NEBRASKA TRACTOR TEST 1414
STEIGER BEARCAT III ST-225 DIESEL
(SERIAL NUMBERS 109-00328 and HIGHER)
ALSO STEIGER BEARCAT IV CM-225 DIESEL
20 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	
Maximum Available Power—Two Hours 11th Gear											
186.21 (138.86)	11254 (50.06)	6.20 (9.99)	2099	2.54	13.307 (50.372)	0.493 (0.300)	13.99 (2.757)	177 (80.6)	60 (15.6)	69 (20.6)	28.585 (96.527)
75% of Pull at Maximum Power—Ten Hours 11th Gear											
153.50 (114.47)	8903 (39.60)	6.47 (10.41)	2179	2.18	11.338 (42.919)	0.509 (0.310)	13.54 (2.667)	176 (79.8)	48 (9.0)	59 (15.0)	29.190 (98.570)
50% of Pull at Maximum Power—Two Hours 11th Gear											
105.18 (78.43)	5953 (26.48)	6.63 (10.66)	2222	1.70	9.028 (34.176)	0.592 (0.360)	11.65 (2.295)	176 (79.7)	55 (12.5)	55 (12.8)	29.020 (97.996)
50% of Pull at Reduced Engine Speed—Two Hours 16th Gear											
104.23 (77.72)	5936 (26.41)	6.58 (10.60)	1186	1.66	7.125 (26.970)	0.471 (0.287)	14.63 (2.882)	174 (78.6)	57 (13.9)	58 (14.4)	29.040 (98.064)

MAXIMUM POWER IN SELECTED GEARS

161.79 (120.64)	28805 (128.13)	2.11 (3.39)	2159	14.92	3rd Gear	179 (81.7)	48 (8.9)	49 (9.4)	28.900 (97.591)
176.52 (131.63)	28313 (125.94)	2.34 (3.76)	2101	13.83	4th Gear	178 (81.1)	45 (7.2)	46 (7.8)	28.910 (97.625)
186.28 (138.91)	24368 (108.39)	2.87 (4.61)	2100	7.80	5th Gear	177 (80.6)	59 (15.0)	64 (17.8)	28.890 (97.557)
191.57 (142.86)	21865 (97.26)	3.29 (5.29)	2099	6.06	6th Gear	177 (80.6)	59 (15.0)	64 (17.8)	28.880 (97.523)
195.03 (145.43)	19473 (86.62)	3.76 (6.04)	2101	4.97	7th Gear	178 (80.8)	60 (15.6)	65 (18.3)	28.860 (97.456)
195.51 (145.79)	17223 (76.61)	4.26 (6.85)	2096	4.17	8th Gear	177 (80.6)	60 (15.6)	65 (18.3)	28.840 (97.388)
196.25 (146.34)	15239 (67.79)	4.83 (7.77)	2100	3.53	9th Gear	177 (80.6)	60 (15.6)	66 (18.9)	28.820 (97.321)
197.69 (147.42)	13562 (60.33)	5.47 (8.80)	2100	3.12	10th Gear	178 (80.8)	59 (15.0)	65 (18.3)	28.810 (97.287)
195.82 (146.02)	11855 (52.73)	6.19 (9.97)	2099	2.79	11th Gear	178 (80.8)	58 (14.4)	63 (17.2)	28.760 (97.118)
195.58 (145.84)	10483 (46.63)	7.00 (11.26)	2097	2.37	12th Gear	178 (81.1)	59 (15.0)	64 (17.8)	28.780 (97.186)
193.11 (144.00)	8919 (39.67)	8.12 (13.07)	2101	1.96	13th Gear	178 (80.8)	59 (15.0)	64 (17.8)	28.790 (97.220)

LUGGING ABILITY IN 11th GEAR

Crankshaft Speed rpm	2099	1889	1678	1469	1260	1054
Pull—lbs (kN)	11855 (52.73)	13367 (59.46)	14377 (63.95)	15683 (69.76)	15564 (69.23)	14424 (64.16)
Increase in Pull %	0	13	21	32	31	22
Power—Hp (kW)	195.82 (146.02)	197.97 (147.62)	188.52 (140.58)	179.53 (133.88)	152.74 (113.90)	118.76 (88.56)
Speed—Mph (km/h)	6.19 (9.97)	5.55 (8.94)	4.92 (7.91)	4.29 (6.91)	3.68 (5.92)	3.09 (4.97)
Slip %	2.79	2.95	3.28	3.61	3.61	3.44

TRACTOR SOUND LEVEL WITH CAB	1700 RPM	2100 RPM
	dB(A)	dB(A)
Maximum Available Power—Two Hours	77.0	77.5
75% of Pull at Maximum Power—Ten Hours		77.5
50% of Pull at Maximum Power—Two Hours		76.5
50% of Pull at Reduced Engine Speed—Two Hours		74.5
Bystander in 19th gear		98.0

Department of Agricultural Engineering

Dates of Test: October 19 to November 4, 1981

Manufacturer: STEIGER TRACTOR, INC.,
1701 Westview Drive, Fargo, North Dakota
58103

FUEL, OIL AND TIME: Fuel No. 2 Diesel Cetane No. 46.3 (rating taken from oil company's inspection data) Specific gravity converted to 60°/60° (15°/15°) 0.8281 Fuel weight 6.895 lbs/gal (0.826 kg/l) Oil SAE 15W-40 API service classification CC, CD, SE To motor 5.736 gal (21.713 l) Drained from motor 4.682 gal (17.722 l) Transmission and hydraulic lubricant SAE 10 hydraulic oil Final drive lubricant SAE 85W90 Total time engine was operated 37.0 hours.

ENGINE: Make Caterpillar Diesel Type six cylinder vertical with turbocharger Serial No. 64Z00412 Crankshaft lengthwise Rated rpm 1700 to 2100 Bore and stroke 4.75" × 6.0" (120.6 mm × 152.4 mm) Compression ratio 15.0 to 1 Displacement 638 cu in (10455 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 oil, radiator for transmission and transfer case oil Fuel filter one paper cartridge Muffler none Cooling medium temperature control one thermostat.

CHASSIS: Type four wheel drive with duals Serial No. 109-00349 81 Tread width rear 79.0" (2007 mm) to 136.4" (3464 mm) front 79.0" (2007 mm) to 136.4" (3464 mm) Wheel base 128" (3251 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 73.4" (1867 mm) Vertical distance above roadway 44.6" (1132 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 1.8 (2.9) second 2.0 (3.3) third 2.3 (3.7) fourth 2.6 (4.2) fifth 3.0 (4.8) sixth 3.3 (5.4) seventh 3.8 (6.1) eighth 4.2 (6.8) ninth 4.8 (7.7) tenth 5.4 (8.6) eleventh 6.1 (9.8) twelfth 6.8 (11.0) thirteenth 7.9 (12.7) fourteenth 8.8 (14.2) fifteenth 10.1 (16.2) sixteenth 11.3 (18.1) seventeenth 12.6 (20.3) eighteenth 14.1 (22.7) nineteenth 16.0 (25.8) twentieth 17.9 (28.8) reverse 1.8 (2.9), 2.0 (3.3), 2.3 (3.7), 2.6 (4.2) Clutch dual dry disc hydraulically operated by foot pedal Brakes multiple dry disc hydraulically operated by foot pedal or mechanically by hand lever Steering hydrostatic and articulated Turning radius (on concrete surface without brake) right 283" (7.19 m) left 288" (7.32 m) Turning space diameter (on concrete surface without brake) right 590" (14.99 m) left 600" (15.24 m) Power take-off none.

DRAWBAR PERFORMANCE AT 1700 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 11th Gear											
184.69 (137.73)	13888 (61.78)	4.99 (8.03)	1701	3.32	11.965 (45.293)	0.447 (0.272)	15.44 (3.041)	176 (80.0)	57 (13.9)	62 (16.7)	28.730 (97.017)

MAXIMUM POWER IN SELECTED GEARS

173.51 (129.39)	28593 (127.19)	2.28 (3.66)	1803	14.73	5th Gear	178 (81.1)	46 (7.8)	47 (8.3)	28.910 (97.625)
177.69 (132.50)	25818 (114.84)	2.58 (4.15)	1701	8.90	6th Gear	176 (80.0)	59 (15.0)	64 (17.8)	28.890 (97.557)
183.42 (136.77)	23021 (102.40)	2.99 (4.81)	1700	6.52	7th Gear	176 (80.0)	59 (15.0)	65 (18.3)	28.870 (97.490)
185.56 (138.37)	20441 (90.93)	3.40 (5.48)	1697	5.36	8th Gear	176 (80.0)	60 (15.6)	65 (18.3)	28.850 (97.422)
188.88 (140.85)	18306 (81.43)	3.87 (6.23)	1699	4.57	9th Gear	176 (80.0)	60 (15.6)	66 (18.9)	28.830 (97.355)
189.85 (141.57)	16212 (72.11)	4.39 (7.07)	1700	3.93	10th Gear	176 (80.0)	60 (15.6)	66 (18.9)	28.810 (97.287)
189.51 (141.32)	14278 (63.51)	4.98 (8.01)	1698	3.28	11th Gear	176 (80.0)	59 (15.0)	64 (17.8)	28.770 (97.152)
189.44 (141.27)	12601 (56.05)	5.64 (9.07)	1699	2.87	12th Gear	176 (80.0)	59 (15.0)	64 (17.8)	28.780 (97.186)
189.85 (141.57)	10888 (48.43)	6.54 (10.52)	1700	2.37	13th Gear	176 (80.0)	59 (15.0)	65 (18.3)	28.790 (97.220)
190.64 (142.16)	9673 (43.03)	7.39 (11.89)	1700	2.04	14th Gear	176 (80.0)	59 (15.0)	65 (18.3)	28.800 (97.253)
187.92 (140.13)	8423 (37.47)	8.37 (13.46)	1700	1.87	15th Gear	176 (80.0)	59 (15.0)	65 (18.3)	28.800 (97.253)

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Four 23.1-34; 8; inner 14 (95) outer 12 (85)	Four 23.1-34; 8; inner 14 (95) outer 12 (85)
Ballast	—Liquid (each) —Test Equip. (each)	None 54 lb (25 kg)	None None
Front Tires	—No., size, ply & psi (kPa)	Four 23.1-34; 8; inner 14 (95) outer 12 (85)	Four 23.1-34; 8; inner 14 (95) outer 12 (85)
Ballast	—Liquid (each) —Test equip. (each)	None 62 lb (28 kg)	None None
Height of Drawbar		18 in (455 mm)	18 in (455 mm)
Static Weight with Operator	—Rear —Front —Total	12815 lb (5813 kg) 17190 lb (7797 kg) 30005 lb (13610 kg)	12600 lb (5715 kg) 16940 lb (7684 kg) 29540 lb (13399 kg)

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

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 return was maintained at 131°F (55.0°C) Eleven gears were chosen between 15% slip and 10 mph (16.1 km/h). The performance figures on this report apply to tractor chassis Serial No. 109-00328 and higher.

NOTE: Supplemental permit for Bearcat IV CM-225 granted October, 1983.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1414.

LOUIS I. LEVITICUS
Engineer-in-Charge

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Steiger Bearcat III ST-225 Diesel

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