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University of Nebraska - Lincoln

Year 1978

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Test 1272: Steiger Bearcat III PT-225  
and ST-225 Diesel (Also Steiger Bearcat  
III PT-225 Without PTO) 20-Speed

Tractor Museum  
University of Nebraska-Lincoln, [TractorMuseumArchives@unl.edu](mailto:TractorMuseumArchives@unl.edu)

# NEBRASKA TRACTOR TEST 1272 — STEIGER BEARCAT III PT 225 DIESEL and STEIGER BEARCAT III PT 225 WITHOUT PTO ALSO STEIGER BEARCAT III ST-225 20 SPEED

## POWER TAKE-OFF PERFORMANCE (SEE NOTE)

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	
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>								
<b>Rated PTO HP—One Hour—Full Throttle Setting (PTO Speed 1024 rpm)</b>								
105.69 (78.81)	2426	11.133 (42.143)	0.729 (0.443)	9.49 (1.870)	188 (86.4)	52 (11.0)	75 (23.8)	29.065 (98.148)
<b>Rated PTO HP—One Hour—Minimum Throttle Setting (PTO Speed 1007 rpm)</b>								
105.53 (78.69)	1703	8.171 (30.929)	0.536 (0.326)	12.92 (2.544)	183 (83.7)	53 (11.7)	75 (23.7)	29.085 (98.216)
<b>VARYING POWER AND FUEL CONSUMPTION—Two Hours— Minimum Throttle Setting</b>								
91.45 (68.20)	1754	7.400 (28.013)	0.560 (0.341)	12.36 (2.434)	180 (82.5)	56 (13.1)	75 (23.9)	.....
0.00 (0.00)	1928	3.113 (11.783)	.....	.....	178 (81.1)	56 (13.1)	74 (23.1)	.....
47.84 (35.67)	1866	5.168 (19.562)	0.747 (0.455)	9.26 (1.824)	180 (81.9)	56 (13.6)	76 (24.4)	.....
105.35 (78.56)	1710	8.120 (30.737)	0.533 (0.324)	12.97 (2.556)	188 (86.4)	57 (13.9)	76 (24.7)	.....
24.22 (18.06)	1900	4.088 (15.475)	1.168 (0.711)	5.92 (1.167)	178 (81.1)	55 (12.8)	74 (23.6)	.....
70.17 (52.32)	1828	6.134 (23.221)	0.605 (0.368)	11.44 (2.253)	180 (82.5)	56 (13.6)	76 (24.4)	.....
<b>Av</b> 56.50 <b>Av</b> (42.13)	<b>1831</b>	<b>5.671</b> <b>(21.465)</b>	<b>0.694</b> <b>(0.422)</b>	<b>9.96</b> <b>(1.963)</b>	<b>181</b> <b>(82.6)</b>	<b>56</b> <b>(13.3)</b>	<b>75</b> <b>(24.0)</b>	<b>28.580</b> <b>(96.510)</b>

## DRAWBAR PERFORMANCE (PT 225)

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 9th (3LL) Gear</b>											
172.37 (128.54)	13072 (58.15)	4.94 (7.96)	2200	3.09	14.342 (54.292)	0.576 (0.350)	12.02 (2.368)	182 (83.3)	46 (7.8)	58 (14.4)	28.770 (97.152)
<b>75% of Pull at Maximum Power—Ten Hours 9th (3LL) Gear</b>											
145.09 (108.19)	9999 (44.48)	5.44 (8.76)	2405	2.33	13.436 (50.860)	0.641 (0.390)	10.80 (2.127)	182 (83.3)	45 (7.4)	47 (8.5)	28.604 (96.591)
<b>50% of Pull at Maximum Power—Two Hours 9th (3LL) Gear</b>											
99.52 (74.22)	6704 (29.82)	5.57 (8.96)	2441	1.50	10.712 (40.548)	0.745 (0.453)	9.29 (1.830)	181 (82.8)	44 (6.7)	49 (9.4)	28.970 (97.827)
<b>50% of Pull at Reduced Engine Speed—Two Hours 14th (4LH) Gear</b>											
99.76 (74.39)	6736 (29.96)	5.55 (8.94)	1311	1.84	7.135 (27.009)	0.495 (0.301)	13.98 (2.754)	182 (83.3)	49 (9.4)	60 (15.3)	28.990 (97.895)
<b>MAXIMUM POWER IN SELECTED GEARS (PT 225)</b>											
156.09 (116.39)	29749 (132.33)	1.97 (3.17)	2326	14.29	2nd (1LH) Gear			184 (84.4)	47 (8.3)	59 (15.0)	29.120 (98.334)
159.57 (118.99)	28472 (126.65)	2.10 (3.38)	2198	14.22	3rd (1HL) Gear			184 (84.4)	46 (7.8)	59 (15.0)	29.130 (98.368)
167.49 (124.90)	24664 (109.71)	2.55 (4.10)	2199	7.58	4th (1HH) Gear			185 (85.0)	47 (8.3)	59 (15.0)	29.110 (98.300)
173.93 (129.70)	21972 (97.73)	2.97 (4.78)	2197	6.07	5th (2LL) Gear			185 (84.7)	47 (8.3)	59 (15.0)	29.110 (98.300)
177.33 (132.23)	19687 (87.57)	3.38 (5.44)	2198	5.05	6th (2LH) Gear			185 (84.7)	47 (8.3)	59 (15.0)	29.110 (98.300)
176.17 (131.37)	17118 (76.15)	3.86 (6.21)	2200	4.02	7th (2HL) Gear			183 (83.9)	51 (10.6)	63 (17.2)	29.130 (98.368)
179.23 (133.65)	15379 (68.41)	4.37 (7.03)	2198	3.54	8th (2HH) Gear			183 (83.9)	51 (10.6)	63 (17.2)	29.130 (98.368)
177.48 (132.35)	13442 (59.79)	4.95 (7.97)	2202	3.05	9th (3LL) Gear			183 (83.9)	51 (10.6)	62 (16.7)	29.140 (98.401)
179.36 (133.75)	12026 (53.50)	5.59 (9.00)	2199	2.63	10th (3LH) Gear			184 (84.2)	51 (10.6)	63 (17.2)	29.120 (98.334)
180.86 (134.87)	10716 (47.67)	6.33 (10.19)	2200	2.30	11th (3HL) Gear			184 (84.2)	51 (10.6)	63 (17.2)	29.120 (98.334)
180.25 (134.41)	9447 (42.02)	7.16 (11.52)	2201	2.13	12th (3HH) Gear			184 (84.4)	51 (10.6)	63 (17.2)	29.120 (98.334)
178.26 (132.93)	8063 (35.87)	8.29 (13.34)	2200	1.63	13th (4LL) Gear			184 (84.4)	51 (10.6)	63 (17.2)	29.120 (98.334)

## LUGGING ABILITY IN 9th 3LL GEAR (PT 225)

Crankshaft Speed rpm	2202	1981	1758	1540	1325	1097
Pull—lbs (kN)	13442 (59.79)	14942 (66.47)	15807 (70.31)	16613 (73.90)	16696 (74.27)	16162 (71.89)
Increase in Pull %	0	11	18	24	24	20
Power—Hp (kW)	177.48 (132.35)	176.69 (131.76)	165.46 (123.38)	151.88 (113.26)	131.36 (97.96)	105.44 (78.62)
Speed—Mph (km/h)	4.95 (7.97)	4.43 (7.14)	3.93 (6.32)	3.43 (5.52)	2.95 (4.75)	2.45 (3.94)
Slip %	3.05	3.54	3.54	4.02	4.18	3.70

Department of Agricultural Engineering

Dates of Test: April 18 to May 10, 1978

Manufacturer: STEIGER TRACTOR INC.,  
3101 First Avenue North, Fargo, North Dakota  
58102

**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°) 0.8311 Fuel weight 6.920 lbs/  
gal (0.831 kg/l) Oil SAE 30 API service classifi-  
cation SB/SE-CA/CD To motor 7.328 gal  
(27.739 l) Drained from motor 5.413 gal  
(20.490 l) Transmission and drop box lubricant  
303 or equivalent Final drive lubricant SAE  
80W90 Total time engine was operated 60.0  
hours**

**ENGINE Make** Caterpillar Diesel **Type** six  
cylinder vertical with turbocharger **Serial No.**  
66D 22122 **Crankshaft** lengthwise **Rated rpm**  
2200 **Bore and stroke** 4.75" × 6.00" (120.7 mm ×  
152.4 mm) **Compression ratio** 17.5 to 1 **Dis-  
placement** 638 cu in (10454 ml) **Cranking system**  
12 volt **Lubrication** pressure **Air cleaner** pri-  
mary and secondary paper elements with as-  
pirator **Oil filter** full flow screw-on cartridge **Oil  
cooler** engine coolant heat exchanger for crank-  
case oil, radiator for transmission and drop box  
oil, radiator for hydrostatic PTO oil **Fuel filter**  
one paper cartridge **Muffler** none **Cooling**  
**medium temperature control** thermostat

**CHASSIS: Type** four wheel drive with duals  
**Serial No.** 141-00037 **Tread width** rear 79.0"  
(2005 mm) and 136.4" (3465 mm) front 79.0" (2005  
mm) and 136.4" (3465 mm) **Wheel base** 132.5"  
(3365 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  
75.4" (1915 mm) Vertical distance above roadway  
43.8" (1113 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 **Adver-  
tised speeds mph (km/h)** first 1.8 (3.0) second 2.1  
(3.4) third 2.3 (3.8) fourth 2.6 (4.3) fifth 3.0 (4.9)  
sixth 3.4 (5.5) seventh 3.8 (6.2) eighth 4.3 (7.0)  
ninth 4.9 (7.8) tenth 5.5 (8.8) eleventh 6.2 (10.0)  
twelfth 7.0 (11.2) thirteenth 8.0 (12.9) fourteenth  
9.1 (14.6) fifteenth 10.3 (16.5) sixteenth 11.6  
(18.6) seventeenth 12.9 (20.7) eighteenth 14.5  
(23.3) nineteenth 16.3 (26.3) twentieth 18.4 (29.6)  
reverse 1.8 (3.0), 2.1 (3.4), 2.3 (3.8), 2.6 (4.3)  
**Clutch** two dry plates hydraulically operated by  
foot pedal **Brakes** multiple dry disc hydraulically  
operated by foot pedal **Steering** hydrostatic and  
articulated **Turning radius** (on concrete surface  
without brake) right 267" (6.78 m) left 264" (6.71  
m) **Turning space diameter** (on concrete surface  
without brake) right 554" (14.07 m) left 551" (14.00  
m) **Power take-off** hydrostatic drive—nominally  
1000 rpm within the engine speed range of 1700  
rpm to high idle.

**NOTE:** The Power take-off on this tractor does  
not transmit full engine power. The standard  
speed and the power are controlled by an elec-  
tro-hydraulic system. The PTO test was run at two  
speeds: Full throttle setting and the minimum set-  
ting which would maintain standard PTO speed  
and advertised power. The following maximum  
variations were observed during the PTO runs:

	Eng. RPM	PTO RPM
Full Throttle	2405-2445	1009-1033
Minimum Throttle	1660-1752	991-1019
85% Torque	1704-1802	1015-1041
¾ × 85% Torque	1785-1845	1033-1069
½ × 85% Torque	1814-1878	1040-1088
¼ × 85% Torque	1859-1939	1054-1100

**DRAWPAR PERFORMANCE  
(PT 225 Without PTO)  
(ALSO ST-225)**

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/kWh)	Hp.hr/gal (kW.h/l)	Cool- ing med	Air wet bulb	Air dry bulb	
<b>Maximum Available Power—Two Hours 9th (3LL) Gear</b>											
182.86 (136.36)	13897 (61.82)	4.93 (7.94)	2198	3.13	14.270 (54.019)	0.540 (0.328)	12.81 (2.524)	183 (83.9)	49 (9.4)	55 (12.5)	29.205 (98.621)
<b>75% of Pull at Maximum Power—Two Hours 9th (3LL) Gear</b>											
152.38 (113.63)	10474 (46.59)	5.46 (8.78)	2411	2.38	13.223 (50.053)	0.600 (0.365)	11.52 (2.270)	181 (82.5)	51 (6.9)	48 (8.6)	29.195 (98.587)
<b>50% of Pull at Maximum Power—Two Hours 9th (3LL) Gear</b>											
104.38 (77.84)	7044 (31.33)	5.56 (8.94)	2443	1.84	10.368 (39.249)	0.687 (0.418)	10.07 (1.983)	181 (82.8)	51 (10.6)	66 (18.9)	29.030 (98.030)
<b>50% of Pull at Reduced Engine Speed—Two Hours 14th (4LH) Gear</b>											
105.06 (78.34)	7086 (31.52)	5.56 (8.95)	1313	1.80	7.262 (27.488)	0.478 (0.291)	14.47 (2.850)	184 (84.2)	51 (10.3)	65 (18.1)	28.995 (97.912)

**MAXIMUM POWER IN SELECTED GEARS (PT 225 Without PTO) (ALSO ST-225)**

159.47 (118.92)	29953 (133.24)	2.00 (3.21)	2368	14.54	2nd (1LH) Gear			184 (84.4)	50 (10.0)	65 (18.3)	29.070 (98.165)
167.06 (124.58)	29711 (132.16)	2.11 (3.39)	2202	13.90	3rd (1HL) Gear			185 (84.7)	50 (10.0)	65 (18.3)	29.080 (98.199)
176.91 (131.92)	26228 (116.67)	2.53 (4.07)	2200	8.32	4th (1HH) Gear			185 (85.0)	49 (9.4)	64 (17.8)	29.090 (98.233)
181.91 (135.65)	23028 (102.44)	2.96 (4.77)	2201	6.22	5th (2LL) Gear			185 (85.0)	48 (8.9)	62 (16.7)	29.100 (98.266)
184.07 (137.26)	20481 (91.11)	3.37 (5.42)	2199	5.45	6th (2HL) Gear			184 (84.4)	47 (8.3)	59 (15.0)	29.110 (98.300)
179.57 (133.91)	17493 (77.81)	3.85 (6.20)	2199	4.18	7th (2HL) Gear			184 (84.2)	50 (10.0)	58 (14.4)	29.180 (98.536)
182.50 (136.09)	15678 (69.74)	4.37 (7.03)	2200	3.62	8th (2HH) Gear			183 (83.9)	49 (9.4)	56 (13.3)	29.200 (98.604)
185.69 (138.47)	14118 (62.80)	4.93 (7.94)	2198	3.05	9th (3LL) Gear			183 (83.9)	49 (9.4)	56 (13.3)	29.200 (98.604)
187.59 (139.89)	12602 (56.06)	5.58 (8.98)	2199	2.63	10th (3LH) Gear			183 (83.9)	49 (9.4)	56 (13.3)	29.200 (98.604)
186.23 (138.87)	11028 (49.06)	6.33 (10.19)	2200	2.38	11th (3HL) Gear			183 (83.9)	50 (10.0)	60 (15.6)	29.160 (98.469)
185.22 (138.12)	9722 (43.24)	7.14 (11.50)	2198	2.13	12th (3HH) Gear			183 (83.9)	51 (10.6)	62 (16.7)	29.150 (98.435)
185.15 (138.07)	8390 (37.32)	8.28 (13.32)	2200	1.88	13th (4LL) Gear			183 (83.9)	51 (10.6)	63 (17.2)	29.140 (98.401)

**LUGGING ABILITY IN (9th 3LL) GEAR (PT 225 W/O PTO) (ALSO ST-225)**

Crankshaft Speed rpm	2198	1980	1760	1537	1322	1108
Pull—lbs (kN)	14118 (62.80)	15730 (69.97)	16471 (73.26)	17114 (76.12)	16947 (75.38)	16741 (74.47)
Increase in Pull %	0	11	17	21	20	19
Power—Hp (kW)	185.69 (138.47)	185.53 (138.35)	172.07 (128.31)	155.82 (116.19)	132.69 (98.95)	110.05 (82.06)
Speed—Mph (km/h)	4.93 (7.94)	4.42 (7.12)	3.92 (6.30)	3.41 (5.49)	2.94 (4.73)	2.47 (3.97)
Slip %	3.05	3.86	4.02	4.18	4.02	4.02

**With PTO      W/O PTO**

TRACTOR SOUND LEVEL WITH CAB		dB(A)	dB(A)
Maximum Available Power—Two Hours		80.5	80.0
75% of Pull at Maximum Power—Ten Hours		80.0	80.0
50% of Pull at Maximum Power—Two Hours		80.0	78.5
50% of Pull at Reduced Engine Speed—Two Hours		76.5	76.5
Bystander in 19th (5HL) gear		99.5	99.0

**TIRES, BALLAST AND WEIGHT**

<b>Rear Tires</b>	—No., size, ply & psi (kPa)	Four 23.1-34, 8 inner 14 (95) outer 12 (80)
<b>Ballast</b>	—Liquid (each)	None
	—Cast Iron (each)	None
<b>Front Tires</b>	—No., size, ply & psi (kPa)	Four 23.1-34, 8 inner 14 (95) outer 12 (80)
<b>Ballast</b>	—Liquid (each)	None
	—Cast Iron (each)	None
<b>Height of drawbar</b>		14.5 in (370 mm)
<b>Static Weight with Operator—Rear</b>		13815 lb (6265 kg)
—Front		17010 lb (7714 kg)
—Total		30825 lb (13979 kg)

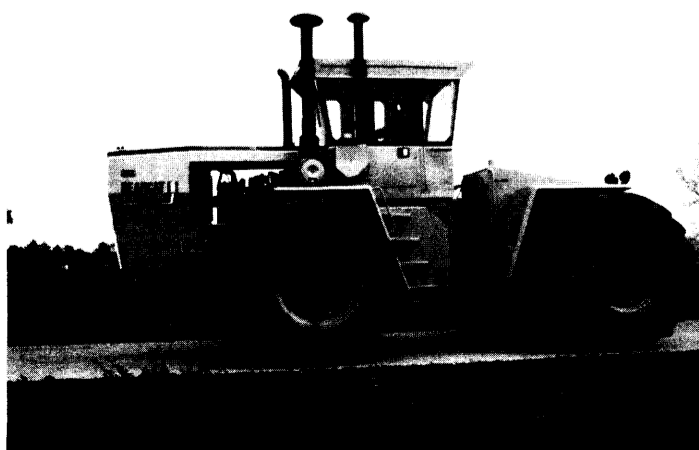
**REPAIRS AND ADJUSTMENTS:** During run-in test PTO pressure limit switch hose assembly developed a leak and was replaced. After run-in test dropbox lower rear seal was replaced.

**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 130°F (54.4°C). Twelve gears were chosen between 15% slip and 10 mph (16.1 km/h). Radiator cap was found to be defective at end of test.

We, the undersigned, certify that this is a true and correct report of official Tractor Test 1272.

LOUIS I. LEVITICUS  
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman  
W. E. SPLINTER  
K. VON BARGEN  
Board of Tractor Test Engineers



**Steiger Bearcat III PT-225 Diesel**

The Agricultural Experiment Station  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
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