January 1978

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

Nebraska Tractor Test Lab
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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 gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated PTO HP—One Hour—Full Throttle Setting (PTO Speed 1024 rpm)								
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)
Rated PTO HP—One Hour—Minimum Throttle Setting (PTO Speed 1007 rpm)								
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)
VARYING POWER AND FUEL CONSUMPTION—Two Hours—Minimum Throttle Setting								
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)	....
Av 56.50	**1831**	**5.671**	**0.694**	**9.96**	**181**	**56**	**75**	**28.580**
Av (42.13)		***(21.465)***	***(0.422)***	***(1.963)***	***(82.6)***	***(13.3)***	***(24.0)***	***(96.510)***

DRAWBAR PERFORMANCE (PT 225)

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (3LL) Gear											
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)
75% of Pull at Maximum Power—Ten Hours 9th (3LL) Gear											
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)
50% of Pull at Maximum Power—Two Hours 9th (3LL) Gear											
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)
50% of Pull at Reduced Engine Speed—Two Hours 14th (4LH) Gear											
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)
MAXIMUM POWER IN SELECTED GEARS (PT 225)											
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 (98.331)
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 classification** 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 **Displacement** 638 cu in *(10454 ml)* **Cranking system** 12 volt **Lubrication** pressure **Air cleaner** primary and secondary paper elements with aspirator **Oil filter** full flow screw-on cartridge **Oil cooler** engine coolant heat exchanger for crankcase 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 **Advertised 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 electro-hydraulic system. The PTO test was run at two speeds: Full throttle setting and the minimum setting 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 gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 9th (3LL) Gear											
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)
75% of Pull at Maximum Power—Two Hours 9th (3LL) Gear											
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)	45 (6.9)	48 (8.6)	29.195 (98.587)
50% of Pull at Maximum Power—Two Hours 9th (3LL) Gear											
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)
50% of Pull at Reduced Engine Speed—Two Hours 14th (4LH) Gear											
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

TRACTOR SOUND LEVEL WITH CAB	With PTO dB(A)	W/O PTO 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 — **Tested Without Ballast**

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

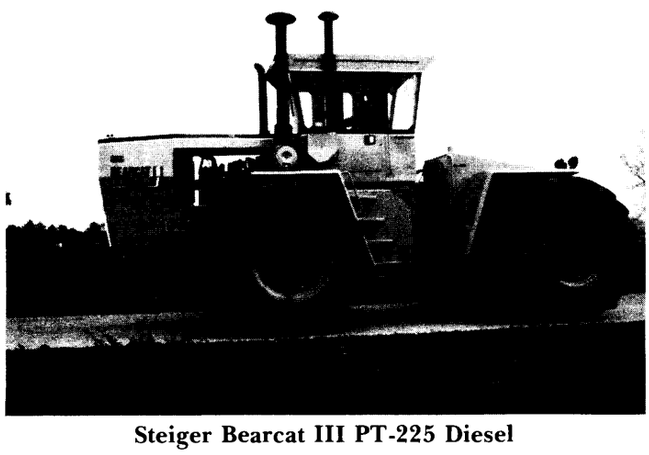
REPAIRS AND ADJUSTMENTS: During run-in test PTO pressure limit switch hose assembly developed a leak and was replaced. After run-in test dropbox lower rear seal was replaced.

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

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