1-1-1982

Test 1456: Steiger Panther KP-1360 Diesel 12-Speed

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1456 — STEIGER PANTHER KP-1360 DIESEL 12 SPEED

POWER TAKE-OFF PERFORMANCE

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 Engine Speed—Two Hours (PTO Speed—1002 rpm)								
326.12 (243.19)	2100	18.758 (71.007)	0.401 (0.244)	17.39 (3.425)	178 (81.4)	74 (23.1)	74 (23.4)	28.410 (95.936)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
282.76 (210.85)	2142	17.005 (64.371)	0.419 (0.255)	16.63 (3.276)	176 (79.7)	74 (23.1)	75 (23.9)	....
0.00 (0.00)	2272	4.792 (18.140)	....	....	168 (75.8)	74 (23.1)	74 (23.6)	....
144.40 (107.68)	2188	11.210 (42.434)	0.541 (0.329)	12.88 (2.538)	171 (77.2)	74 (23.3)	75 (23.9)	....
325.93 (243.05)	2100	18.747 (70.965)	0.401 (0.244)	17.39 (3.425)	180 (81.9)	74 (23.3)	75 (23.9)	....
73.51 (54.82)	2224	7.863 (29.765)	0.746 (0.454)	9.35 (1.842)	169 (76.1)	74 (23.3)	75 (23.9)	....
214.71 (160.11)	2168	13.955 (52.825)	0.453 (0.276)	15.39 (3.031)	172 (77.8)	72 (22.5)	74 (23.6)	....
Av 173.55	**2182**	**12.262**	**0.493**	**14.15**	**173**	**74**	**75**	**28.378**
Av (129.42)		***(46.417)***	***(0.300)***	***(2.788)***	***(78.1)***	***(23.1)***	***(23.8)***	***(95.822)***

DRAWBAR PERFORMANCE

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 7th Gear											
289.10 (215.58)	15622 (69.49)	6.94 (11.17)	2100	2.93	18.712 (70.834)	0.451 (0.275)	15.45 (3.043)	178 (80.8)	57 (13.9)	64 (17.5)	29.005 (97.946)
75% of Pull at Maximum Power—Ten Hours 7th Gear											
227.19 (169.41)	11827 (52.61)	7.20 (11.59)	2162	2.03	15.923 (60.277)	0.489 (0.297)	14.27 (2.811)	175 (79.2)	52 (10.8)	61 (16.2)	28.919 (97.655)
50% of Pull at Maximum Power—Two Hours 7th Gear											
154.34 (115.09)	7885 (35.07)	7.34 (11.81)	2190	1.38	12.708 (48.105)	0.574 (0.349)	12.15 (2.393)	172 (77.8)	44 (6.7)	49 (9.2)	29.085 (98.216)
50% of Pull at Reduced Engine Speed—Two Hours 10th Gear											
154.37 (115.11)	7885 (35.07)	7.34 (11.81)	1280	1.34	10.199 (38.606)	0.461 (0.280)	15.14 (2.982)	173 (78.3)	44 (6.7)	50 (9.7)	29.080 (98.199)
MAXIMUM POWER IN SELECTED GEARS											
251.75 (187.73)	36771 (163.56)	2.57 (4.13)	2110	14.81	2nd Gear			174 (78.6)	38 (3.3)	40 (4.4)	29.200 (98.604)
275.83 (205.68)	31776 (141.34)	3.26 (5.24)	2099	8.48	3rd Gear			175 (79.4)	44 (6.7)	50 (10.0)	29.200 (98.604)
284.09 (211.84)	26472 (117.75)	4.02 (6.48)	2099	5.92	4th Gear			174 (78.6)	50 (10.0)	55 (12.8)	28.970 (97.827)
288.73 (215.31)	22107 (98.34)	4.90 (7.88)	2098	4.43	5th Gear			174 (78.9)	50 (10.0)	55 (12.8)	28.970 (97.827)
289.26 (215.70)	18507 (82.32)	5.86 (9.43)	2099	3.62	6th Gear			175 (79.2)	49 (9.4)	54 (12.2)	28.960 (97.794)
291.14 (217.10)	15769 (70.14)	6.92 (11.14)	2100	2.97	7th Gear			175 (79.4)	50 (10.0)	54 (12.2)	28.990 (97.895)
286.86 (213.92)	12863 (57.22)	8.36 (13.46)	2100	2.47	8th Gear			174 (78.9)	50 (10.0)	54 (12.2)	28.980 (97.861)

LUGGING ABILITY IN 7th GEAR

Crankshaft Speed rpm	2100	1885	1678	1464	1258	1046
Pull—lbs (kN)	15769 (70.14)	18900 (84.07)	21686 (96.46)	24235 (107.80)	24120 (107.29)	22038 (98.03)
Increase in Pull %	0	20	38	54	53	40
Power—Hp (kW)	291.14 (217.10)	311.08 (231.98)	315.53 (235.29)	305.52 (227.82)	261.28 (194.84)	199.50 (148.76)
Speed—Mph (km/h)	6.92 (11.14)	6.17 (9.93)	5.46 (8.78)	4.73 (7.61)	4.06 (6.54)	3.39 (5.46)
Slip %	2.97	3.79	4.43	5.22	5.22	4.59

TRACTOR SOUND LEVEL WITH CAB	1700 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	74.0	75.5	75.5
75% of Pull at Maximum Power—Ten Hours			76.0
50% of Pull at Maximum Power—Two Hours			74.5
50% of Pull at Reduced Engine Speed—Two Hours			73.0
Bystander in 12th gear			94.0

Department of Agricultural Engineering

Dates of Test: October 4 to 19, 1982

Manufacturer: STEIGER TRACTOR, INC., 406 Main Avenue, Fargo, North Dakota 58126

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** CD, CC, SF **To motor** 8.408 gal *(31.827 l)* **Drained from motor** 7.630 gal *(28.883 l)* **Transmission and hydraulic lubricant** SAE 10 hydraulic transmission fluid **Final drive lubricant** SAE 85W-90 **Total time engine was operated** 71.0 hours.

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 11059658 **Crankshaft** lengthwise **Rated rpm** 1700 to 2100 **Bore and stroke** 5.5″ × 6.0″ *(139.7 mm × 152.4 mm)* **Compression ratio** 14.1 to 1 **Displacement** 855 cu in *(14011 ml)* **Starting system** 12 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** two paper cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** P36000507- **Tread width** rear 79″ *(2007 mm)* to 136.4″ *(3464 mm)* front 79″ *(2007 mm)* to 136.4″ *(3464 mm)* **Wheel base** 141.5″ *(3594 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 75.5″ *(1918 mm)* Vertical distance above roadway 45.4″ *(1153 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 with full range operator controlled powershift **Advertised speeds mph *(km/h)*** first 2.4 *(3.9)* second 2.9 *(4.7)* third 3.4 *(5.5)* fourth 4.1 *(6.6)* fifth 4.9 *(7.9)* sixth 5.8 *(9.3)* seventh 6.8 *(10.9)* eighth 8.2 *(13.2)* ninth 9.6 *(15.4)* tenth 11.6 *(18.7)* eleventh 14.0 *(22.5)* twelfth 16.5 *(26.5)* reverse 3.0 *(4.8)*, 5.1 *(8.2)* **Clutch** multiple wet disc hydraulically power actuated and operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal or mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 276″ *(7.01 m)* left 276″ *(7.01 m)* **Turning space diameter** (on concrete surface without brake) right 581.5″ *(14.77 m)* left 581.5″ *(14.77 m)* **Power take-off** 1002 rpm at 2100 engine rpm.

SUPPLEMENTARY TESTS
POWER AND FUEL CONSUMPTION AT 1900 RPM
POWER TAKE-OFF PERFORMANCE

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 Engine Speed—One Hour (PTO Speed—907 rpm)								
347.12 *(258.85)*	1900	18.831 *(71.283)*	0.378 *(0.230)*	18.43 *(3.631)*	180 *(82.2)*	74 *(23.2)*	75 *(23.9)*	28.395 *(95.886)*

DRAWBAR PERFORMANCE

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 7th Gear											
308.01 *(229.68)*	18501 *(82.30)*	6.24 *(10.05)*	1901	3.42	18.820 *(71.241)*	0.426 *(0.259)*	16.37 *(3.224)*	180 *(82.2)*	57 *(13.9)*	69 *(20.3)*	29.025 *(98.013)*
MAXIMUM POWER IN SELECTED GEARS											
272.34 *(203.09)*	36697 *(163.24)*	2.78 *(4.48)*	1929	14.81	3rd Gear			175 *(79.2)*	42 *(5.6)*	47 *(8.3)*	29.200 *(98.604)*
295.65 *(220.47)*	31135 *(138.49)*	3.56 *(5.73)*	1901	8.04	4th Gear			177 *(80.3)*	48 *(8.9)*	55 *(12.8)*	29.200 *(98.604)*
301.76 *(225.02)*	25809 *(114.80)*	4.38 *(7.06)*	1901	5.53	5th Gear			175 *(79.4)*	50 *(10.0)*	55 *(12.8)*	28.970 *(97.827)*
305.10 *(227.51)*	21733 *(96.67)*	5.26 *(8.47)*	1901	4.51	6th Gear			175 *(79.4)*	50 *(10.0)*	54 *(12.2)*	28.960 *(97.794)*
312.41 *(232.96)*	18826 *(83.74)*	6.22 *(10.02)*	1900	3.70	7th Gear			175 *(79.4)*	50 *(10.0)*	54 *(12.2)*	28.980 *(97.861)*
308.80 *(230.27)*	15381 *(68.42)*	7.53 *(12.12)*	1900	2.81	8th Gear			176 *(80.0)*	50 *(10.0)*	54 *(12.2)*	28.970 *(97.827)*
304.73 *(227.23)*	12755 *(56.73)*	8.96 *(14.42)*	1899	2.31	9th Gear			175 *(79.4)*	50 *(10.0)*	54 *(12.2)*	28.970 *(97.827)*

POWER AND FUEL CONSUMPTION AT 1700 RPM
POWER TAKE-OFF PERFORMANCE

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 Engine Speed—One Hour (PTO Speed—811 rpm)								
349.67 *(260.75)*	1700	18.482 *(69.962)*	0.369 *(0.224)*	18.92 *(3.727)*	182 *(83.4)*	73 *(22.9)*	75 *(23.9)*	28.395 *(95.886)*

DRAWBAR PERFORMANCE

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 7th Gear											
309.59 *(230.86)*	20929 *(93.09)*	5.55 *(8.93)*	1701	4.11	18.730 *(70.902)*	0.422 *(0.257)*	16.53 *(3.256)*	180 *(82.2)*	57 *(13.6)*	68 *(20.0)*	29.045 *(98.081)*
MAXIMUM POWER IN SELECTED GEARS											
271.94 *(202.79)*	36621 *(162.90)*	2.78 *(4.48)*	1929	14.81	3rd Gear			175 *(79.4)*	43 *(6.1)*	49 *(9.4)*	29.200 *(98.604)*
288.63 *(215.23)*	35396 *(157.45)*	3.06 *(4.92)*	1700	11.86	4th Gear			176 *(80.0)*	46 *(7.8)*	53 *(11.7)*	29.200 *(98.604)*
299.46 *(223.31)*	29077 *(129.34)*	3.86 *(6.22)*	1699	7.07	5th Gear			176 *(80.0)*	50 *(10.0)*	55 *(12.8)*	28.970 *(97.827)*
306.55 *(228.60)*	24614 *(109.49)*	4.67 *(7.52)*	1702	5.22	6th Gear			176 *(80.0)*	50 *(10.0)*	54 *(12.2)*	28.970 *(97.827)*
316.04 *(235.67)*	21417 *(95.27)*	5.53 *(8.91)*	1700	4.43	7th Gear			176 *(79.7)*	50 *(10.0)*	54 *(12.2)*	28.980 *(97.861)*
314.70 *(234.67)*	17587 *(78.23)*	6.71 *(10.80)*	1702	3.38	8th Gear			176 *(80.0)*	50 *(10.0)*	54 *(12.2)*	28.970 *(97.827)*
312.53 *(233.05)*	14658 *(65.20)*	8.00 *(12.87)*	1700	2.64	9th Gear			177 *(80.3)*	50 *(10.0)*	54 *(12.2)*	28.960 *(97.794)*

TIRES, BALLAST AND WEIGHT		**With Ballast**	**Without Ballast**
Rear Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*	Four 23.1-34; 8; inner 16 *(110)* outer 14 *(95)*
Ballast	—Liquid (each inner)	2045 lb *(928 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		19.5 in *(495 mm)*	19.5 in *(495 mm)*
Static Weight with Operator—Rear		16640 lb *(7548 kg)*	16640 lb *(7548 kg)*
Front		22930 lb *(10401 kg)*	18840 lb *(8546 kg)*
Total		39570 lb *(17949 kg)*	35480 lb *(16094 kg)*

REPAIRS and ADJUSTMENTS: During preliminary drawbar tests, the circuit breaker in the transmission control circuit was found to be of the wrong amperage. It was replaced with one of proper amperage and test continued.

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 inlet was maintained at 116°F *(46.7°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 No. **1456.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
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Steiger Panther KP-1360 Diesel

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