10-2-1985

Test 1578: Steiger Couger CR 1280 Diesel 20-Speed

Nebraska Tractor Test Lab
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NEBRASKA TRACTOR TEST 1578—STEIGER COUGAR CR 1280 DIESEL 20 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—999 rpm)								
258.15 (192.51)	2100	15.021 (56.862)	0.408 (0.248)	17.19 (3.385)	179 (81.8)	63 (17.1)	75 (24.1)	28.84 (97.37)
*** VARYING POWER AND FUEL CONSUMPTION — Two Hours**								
223.90 (166.96)	2142	13.485 (51.048)	0.422 (0.257)	16.60 (3.271)	179 (81.7)	64 (17.5)	75 (23.6)	....
0.00 (0.00)	2281	3.726 (14.106)	....	....	177 (80.3)	63 (17.2)	74 (23.3)	....
115.84 (86.38)	2220	8.745 (33.103)	0.529 (0.322)	13.25 (2.609)	178 (81.1)	64 (17.8)	75 (23.6)	....
257.95 (192.35)	2100	14.987 (56.733)	0.407 (0.248)	17.21 (3.391)	180 (81.9)	67 (19.2)	77 (25.0)	....
58.87 (43.90)	2253	6.323 (23.937)	0.753 (0.458)	9.31 (1.834)	177 (80.6)	65 (18.3)	75 (23.6)	....
171.08 (127.57)	2183	11.102 (42.027)	0.455 (0.277)	15.41 (3.035)	178 (81.1)	67 (19.2)	76 (24.4)	....
Av 137.94	**2196**	**9.728**	**0.495**	**14.18**	**178**	**65**	**75**	**28.85**
Av (102.86)		***(36.826)***	***(0.301)***	***(2.793)***	***(81.1)***	***(18.2)***	***(23.9)***	***(97.41)***

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 10th (5LL) Gear											
225.22 (167.95)	16251 (72.29)	5.20 (8.36)	2100	3.84	14.839 (56.171)	0.462 (0.281)	15.18 (2.990)	182 (83.3)	49 (9.4)	60 (15.6)	29.02 (97.98)
75% of Pull at Maximum Power — Ten Hours 10th (5LL) Gear											
180.58 (134.66)	12517 (55.68)	5.41 (8.71)	2163	2.74	12.627 (47.798)	0.490 (0.298)	14.30 (2.817)	182 (83.3)	41 (5.2)	47 (8.2)	29.15 (98.42)
50% of Pull at Maximum Power — Two Hours 10th (5LL) Gear											
124.10 (92.54)	8345 (37.12)	5.58 (8.97)	2208	1.91	10.040 (38.005)	0.567 (0.345)	12.36 (2.435)	181 (82.8)	36 (1.9)	39 (3.9)	29.12 (98.32)
50% of Pull at Reduced Engine Speed — Two Hours 15th (2HH) Gear											
124.14 (92.57)	8345 (37.12)	5.58 (8.98)	1221	1.74	8.214 (31.095)	0.464 (0.282)	15.11 (2.977)	181 (82.5)	44 (6.4)	52 (10.8)	29.11 (98.28)
MAXIMUM POWER IN SELECTED GEARS											
199.08 (148.45)	28708 (127.70)	2.60 (4.19)	2110	14.84	3rd (2LL) Gear			184 (84.2)	46 (7.8)	56 (13.3)	29.08 (98.20)
216.62 (161.53)	26013 (115.71)	3.12 (5.03)	2100	8.23	4th (3LL) Gear			184 (84.2)	46 (7.8)	57 (13.9)	29.07 (98.17)
221.01 (164.81)	24319 (108.17)	3.41 (5.48)	2099	6.89	5th (2LH) Gear			183 (83.9)	60 (15.6)	70 (21.1)	28.73 (97.02)
224.15 (167.15)	21758 (96.78)	3.86 (6.22)	2100	5.66	6th (3LH) Gear			183 (83.9)	60 (15.6)	70 (21.1)	28.73 (97.02)
223.40 (166.59)	21195 (94.28)	3.95 (6.36)	2099	5.43	7th (4LL) Gear			182 (83.3)	60 (15.6)	70 (21.1)	28.73 (97.02)
226.75 (169.09)	18194 (80.93)	4.67 (7.52)	2098	4.32	8th (1HL) Gear			182 (83.3)	60 (15.6)	70 (21.1)	28.73 (97.02)
226.34 (168.78)	17595 (78.26)	4.82 (7.76)	2102	4.16	9th (4LH) Gear			182 (83.3)	60 (15.6)	70 (21.1)	28.74 (97.05)
231.19 (172.40)	16689 (74.24)	5.19 (8.36)	2099	3.76	10th (5LL) Gear			182 (83.3)	60 (15.6)	70 (21.1)	28.76 (97.12)
228.45 (170.36)	15078 (67.07)	5.68 (9.14)	2100	3.27	11th (1HH) Gear			182 (83.3)	60 (15.6)	70 (21.1)	28.76 (97.12)
225.24 (167.96)	13398 (59.60)	6.30 (10.15)	2099	2.78	12th (5LH) Gear			183 (83.6)	60 (15.6)	70 (21.1)	28.75 (97.08)
227.66 (169.76)	10760 (47.86)	7.93 (12.77)	2096	2.20	13th (2HL) Gear			183 (83.9)	60 (15.6)	70 (21.1)	28.75 (97.08)
225.60 (168.23)	9480 (42.17)	8.92 (14.36)	2101	2.03	14th (3HL) Gear			183 (83.9)	60 (15.6)	70 (21.1)	28.74 (97.05)

Department of Agricultural Engineering

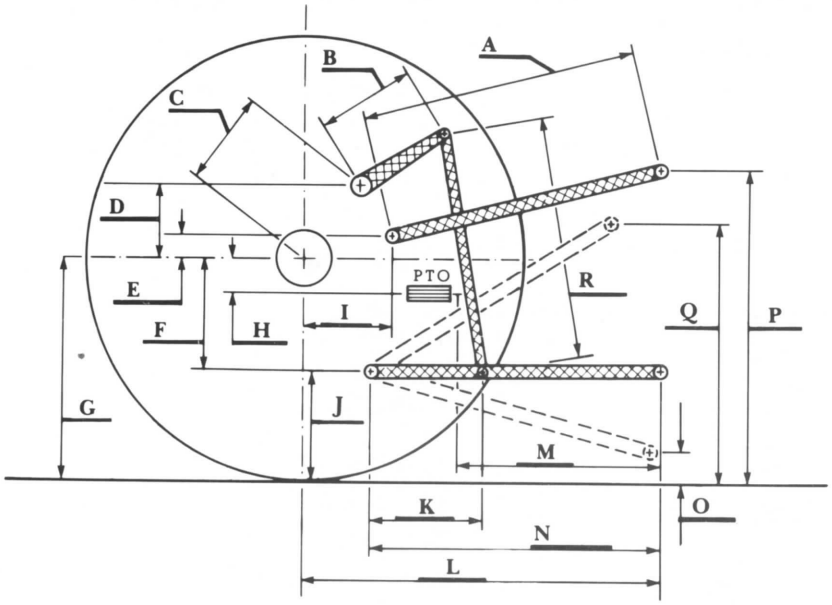
Dates of Test: September 23 to October 2, 1985

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

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 46.9 (rating taken from oil company's inspection data) **Specific gravity converted to 60/60°F *(15/15°C)*** 0.8422 **Fuel weight** 7.012 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** CD, SF, CC **To motor** 5.861 gal *(22.184 l)* **Drained from motor** 5.202 gal *(19.690 l)* **Transmission and final drive lubricant** Steiger hydraulic/transmission fluid **Total time engine was operated** 35.5 hours.

ENGINE: Make Caterpillar Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 64Z03842 **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** 4.75″ × 6.00″ *(120.7 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 and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic oil, radiator for transmission oil **Fuel filter** one paper cartridge and prestrainer **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** C03-05307 **Tread width** rear 64″ *(1625 mm)* to 130″ *(3302 mm)* front 64″ *(1625 mm)* to 130″ *(3302 mm)* **Wheel base** 130″ *(3302 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 72″ *(1829 mm)* Vertical distance above roadway 46″ *(1168 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 partial (2) range operator controlled powershift **Advertised speeds mph *(km/h)*** first 1.8 *(2.9)* second 2.1 *(3.4)* third 2.9 *(4.7)* fourth 3.3 *(5.3)* fifth 3.5 *(5.6)* sixth 3.9 *(6.3)* seventh 4.0 *(6.4)* eighth 4.7 *(7.6)* ninth 4.8 *(7.7)* tenth 5.2 *(8.4)* eleventh 5.6 *(9.0)* twelfth 6.2 *(10.0)* thirteenth 7.8 *(12.6)* fourteenth 8.7 *(14.0)* fifteenth 9.4 *(15.1)* sixteenth 10.5 *(16.9)* seventeenth 10.7 *(17.2)* eighteenth 12.9 *(20.8)* nineteenth 13.8 *(22.2)* twentieth 16.6 *(26.7)* reverse 3.2 *(5.2)*, 3.9 *(6.3)*, 8.7 *(14.0)*, 10.4 *(16.8)* **Clutch** wet multiple disc hydraulically power actuated and operated by foot pedal **Brakes** caliper disc hydraulically operated by foot pedal **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 240″ *(6.1 m)* left 240″ *(6.1 m)* **Turning space diameter** (on concrete surface without brake) right 501″ *(12.73 m)* left 501″ *(12.73 m)* **Power take-off** 999 rpm at 2100 engine rpm **Unladen tractor mass** 26460 lb *(12002 kg)*.



Hitch Dimensions as Tested — No Load

	inch	*mm*
A	29.5	*749*
B	21.0	*533*
C	25.8	*654*
D	25.1	*638*
E	11.4	*289*
F	9.9	*251*
G	32.8	*832*
H	2.2	*56*
I	23.3	*591*
J	22.9	*581*
K	23.0	*584*
L	52.7	*1338*
L'	57.7	*1465*
M	25.0	*635*
N	42.0	*1067*
O	8.0	*203*
P	44.9	*1140*
Q	40.9	*1038*
R	35.4	*899*

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Steiger Cougar CR 1280 Diesel

Agricultural Research Division
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director

LUGGING ABILITY IN 10th (5LL) GEAR

Crankshaft Speed rpm	2099	1891	1683	1474	1258	1045
Pull—lbs *(kN)*	16689 *(74.24)*	19636 *(87.35)*	20967 *(93.27)*	21528 *(95.76)*	21441 *(95.37)*	20306 *(90.33)*
Increase in Pull %	0	18	26	29	28	22
Power—Hp *(kW)*	231.19 *(172.40)*	242.53 *(180.85)*	229.64 *(171.25)*	205.56 *(153.28)*	174.59 *(130.19)*	137.93 *(102.85)*
Speed—Mph *(km/h)*	5.19 *(8.36)*	4.63 *(7.45)*	4.11 *(6.61)*	3.58 *(5.76)*	3.05 *(4.91)*	2.55 *(4.10)*
Slip %	3.76	4.80	5.12	5.43	5.59	5.27

TRACTOR SOUND LEVEL WITH CAB	**dB(A)**
Maximum Available Power—Two Hours	77.0
75% of Pull at Maximum Power—Ten Hours	77.5
50% of Pull at Maximum Power—Two Hours	78.0
50% of Pull at Reduced Engine Speed—Two Hours	74.5
Bystander in 20th (5HH) gear	90.5

TIRES, BALLAST AND WEIGHT

		Tested Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 23.1-34; 8; inner 14 *(95)* outer 12 *(85)*
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 *(85)*
Ballast	—Liquid (each)	None
	—Cast Iron (each)	None
Height of Drawbar		14.5 in *(370 mm)*
Static Weight with Operator—Rear		13100 lb *(5942 kg)*
	—Front	16500 lb *(7484 kg)*
	—Total	29600 lb *(13426 kg)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi *(kPa)*	2500 *(17240)*	
Location	remote outlet	
Hydraulic oil temperature °F *(°C)*	130 *(54)*	
Location	hydraulic reservoir	
	Maximum Lift Capacity	**Lift Capacity for Transport**
QUICK ATTACH	yes	
CATEGORY	III	*not measured
LOAD lbs *(kg)*	12734 *(5776)*	
TIME sec	3.14	
HITCH POINT MOVEMENT in *(mm)*		
Lowest position	11.3 *(287)*	
Top of timed range	37.3 *(947)*	
Highest position	40.6 *(1031)*	
LOAD CG MOVEMENT in *(mm)*		
Lowest position	12.0 *(305)*	
Top of timed range	38.7 *(983)*	
Highest position	42.9 *(1090)*	

*Implement load capacity for transport purposes not specified by manufacturer.

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 and the technically equivalent ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 139°F *(59.5°C)*. Twelve 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. **1578,** October 30, 1985.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
T. L. THOMPSON
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Board of Tractor Test Engineers