

Tractor Test and Power Museum, The Lester F. Larsen

UNL Larsen Tractor Museum Archives

University of Nebraska - Lincoln

Year 1981

Test 1413: Steiger Cougar III PTA-280
and Cougar IV CS-280 Diesel 10-Speed

Tractor Museum

University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

NEBRASKA TRACTOR TEST 1413

STEIGER COUGAR III PTA-280 CATERPILLAR DIESEL

ALSO STEIGER COUGAR IV CS-280 DIESEL

10 SPEED

DRAWBAR PERFORMANCE

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 5th (4L) Gear											
231.61 (172.71)	15507 (68.98)	5.60 (9.01)	2099	3.31	16.262 (61.558)	0.484 (0.294)	14.24 (2.806)	180 (81.9)	49 (9.4)	56 (13.1)	28.940 (97.726)
75% of Pull at Maximum Power—Ten Hours 5th (4L) Gear											
186.72 (139.24)	11878 (52.84)	5.89 (9.49)	2189	2.43	14.213 (53.803)	0.525 (0.319)	13.14 (2.588)	178 (81.1)	53 (11.8)	63 (17.3)	28.866 (97.476)
50% of Pull at Maximum Power—Two Hours 5th (4L) Gear											
127.62 (95.16)	7920 (35.23)	6.04 (9.72)	2225	1.62	11.403 (43.166)	0.616 (0.375)	11.19 (2.205)	179 (81.7)	56 (13.1)	67 (19.4)	28.910 (97.625)
50% of Pull at Reduced Engine Speed—Two Hours 7th (2H) Gear											
127.68 (95.21)	7924 (35.25)	6.04 (9.72)	1545	1.74	8.974 (33.970)	0.485 (0.295)	14.23 (2.803)	177 (80.6)	54 (11.9)	59 (14.7)	28.710 (96.949)

MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Gear	Cool- ing med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
149.98 (111.84)	32085 (142.72)	1.75 (2.82)	2197	14.73	1st (1L) Gear	178 (80.8)	47 (8.3)	50 (10.0)	28.760 (97.118)
224.19 (167.18)	24761 (110.14)	3.40 (5.46)	2099	6.39	2nd (2L) Gear	182 (83.3)	56 (13.3)	68 (20.0)	28.910 (97.625)
224.55 (167.45)	19460 (86.56)	4.33 (6.96)	2098	4.28	3rd (1H) Gear	183 (83.9)	56 (13.3)	69 (20.6)	28.920 (97.659)
232.96 (173.72)	19943 (88.71)	4.38 (7.05)	2100	4.44	4th (3L) Gear	182 (83.1)	55 (12.8)	66 (18.9)	28.920 (97.659)
236.40 (176.28)	15813 (70.34)	5.61 (9.02)	2101	3.31	5th (4L) Gear	182 (83.1)	54 (12.2)	65 (18.3)	28.930 (97.692)
236.55 (176.39)	12538 (55.77)	7.07 (11.39)	2099	2.41	6th (5L) Gear	182 (83.1)	55 (12.8)	67 (19.4)	28.920 (97.659)
233.58 (174.18)	10705 (47.62)	8.18 (13.17)	2100	1.99	7th (2H) Gear	182 (83.3)	56 (13.3)	68 (20.0)	28.920 (97.659)

LUGGING ABILITY IN 5th (4L) GEAR

Crankshaft Speed rpm	2101	1888	1681	1470
Pull—lbs (kN)	15813 (70.34)	18365 (81.69)	20381 (90.66)	21977 (97.76)
Increase in Pull %	0	16	29	39
Power—Hp (kW)	236.40 (176.28)	244.98 (182.68)	240.48 (179.32)	225.62 (168.24)
Speed—Mph (km/h)	5.61 (9.02)	5.00 (8.05)	4.42 (7.12)	3.85 (6.20)
Slip %	3.31	4.12	4.60	5.07

At 1460 RPM the automatic transmission shifted down to 4th (3L) gear and the test was terminated.

TRACTOR SOUND LEVEL WITH CAB

dB(A)

Maximum Available Power—Two Hours	76.5
75% of Pull at Maximum Power—Ten Hours	77.0
50% of Pull at Maximum Power—Two Hours	77.0
50% of Pull at Reduced Engine Speed—Two Hours	75.0
Bystander in 10th (5H) gear	98.0

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires	Four 23.1-34; 8; inner 14 (95) outer 12 (85)	Four 23.1-34; 8; inner 14 (95) outer 12 (85)
Ballast	None	None
—Liquid (each)	80 lb (36 kg)	None
—Test Equip. (each)	None	None
Front Tires	Four 23.1-34; 8; inner 14 (95) outer 12 (85)	Four 23.1-34; 8; inner 14 (95) outer 12 (85)
Ballast	None	None
—Liquid (each inner)	1025 lb (465 kg)	None
—Cast Iron (each)	None	None
Height of Drawbar	17.5 in (445 mm)	17.5 in (445 mm)
Static Weight with Operator		
—Rear	13120 lb (5951 kg)	12800 lb (5806 kg)
—Front	20030 lb (9086 kg)	17980 lb (8156 kg)
—Total	33150 lb (15037 kg)	30780 lb (13962 kg)

Department of Agricultural Engineering

Dates of Test: October 21 to November 3, 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 7.296 gal (27.618 l) Drained from motor 6.094 gal (23.068 l) Transmission lubricant hydraulic transmission fluid type C-3 (Dextron) Transfer case lubricant 303 or equivalent Hydraulic oil SAE 10 hydraulic oil, 303 or equivalent Final drive lubricant SAE 85W 90 Total time engine was operated 31.5 hours.

ENGINE: Make Caterpillar Diesel Type six cylinder vertical with turbocharger Serial No. 90U15964 Crankshaft lengthwise Rated rpm 2100 Bore and stroke 5.4" × 6.5" (137 mm × 165 mm) Compression ratio 14.5 to 1 Displacement 893 cu in (14634 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements with aspirator Oil filter one full flow cartridge Oil cooler separate engine coolant heat exchangers for crankcase oil and transmission oil, separate radiators for hydraulic and transfer case oil Fuel Filter one paper cartridge and prestrainer Muffler none Cooling medium temperature control one thermostat.

CHASSIS: Type four wheel drive with duals Serial No. 155-00002 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 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 77.4" (1966 mm) Vertical distance above roadway 45.5" (1156 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 automatic power-shift and torque converter lockup Advertised speeds mph (km/h) first 1.9 (3.0) second 3.4 (5.6) third 4.3 (6.9) fourth 4.4 (7.0) fifth 5.5 (8.9) sixth 6.9 (11.1) seventh 7.9 (12.8) eighth 10.0 (16.2) ninth 12.7 (20.4) tenth 15.9 (25.6) reverse 2.4 (3.8), 5.4 (8.7) Clutch none 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 257" (6.53 m) left 261.5" (6.64 m) Turning space diameter (on concrete surface without brake) right 537" (13.64 m) left 546" (13.87 m) Power take-off none.

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 158°F (70.0°C) Seven gears were chosen between 15% slip and 10 mph (16.1 km/h).

NOTE: Supplemental permit for Cougar IV CS-280 granted October, 1983.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1413.

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers



Steiger Cougar III PTA-280 Caterpillar Diesel