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Test 1402: Steiger Cougar III PTA 280 Diesel 10-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1402

STEIGER COUGAR III PTA 280 CUMMINS 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												
217.04 (161.85)	14679 (65.30)	5.54 (8.92)	2099	2.97	15.795 (59.791)	0.501 (0.305)	13.74 (2.707)	174 (78.6)	74 (23.1)	85 (29.2)		28.970 (97.827)
75% of Pull at Maximum Power—Ten Hours 5th (4L) Gear												
176.96 (131.96)	11397 (50.70)	5.82 (9.37)	2187	2.23	14.114 (53.427)	0.549 (0.334)	12.54 (2.470)	170 (76.8)	62 (16.8)	74 (23.1)		29.083 (98.209)
50% of Pull at Maximum Power—Two Hours 5th (4L) Gear												
121.11 (90.31)	7623 (33.91)	5.96 (9.59)	2221	1.49	11.601 (43.916)	0.660 (0.401)	10.44 (2.056)	169 (76.1)	65 (18.3)	78 (23.6)		28.930 (97.692)
50% of Pull at Reduced Engine Speed—Two Hours 7th (2H) Gear												
122.06 (91.02)	7686 (34.19)	5.96 (9.58)	1539	1.32	8.769 (33.195)	0.495 (0.301)	13.92 (2.742)	170 (76.7)	67 (19.2)	84 (28.9)		28.885 (97.540)

MAXIMUM POWER IN SELECTED GEARS

149.78 (111.69)	32625 (145.12)	1.72 (2.77)	2187	14.82	1st (1L) Gear			171 (76.9)	61 (16.1)	68 (20.0)		28.930 (97.692)
214.86 (160.22)	23861 (106.14)	3.38 (5.43)	2099	5.72	2nd (2L) Gear			173 (78.3)	73 (22.8)	83 (28.3)		28.940 (97.726)
211.67 (157.84)	18476 (82.19)	4.30 (6.91)	2101	3.77	3rd (1H) Gear			174 (78.6)	73 (22.8)	84 (28.9)		28.940 (97.726)
220.36 (164.32)	19015 (84.58)	4.35 (6.99)	2101	3.93	4th (3L) Gear			173 (78.3)	73 (22.8)	84 (28.9)		28.940 (97.726)
224.92 (167.72)	15215 (67.68)	5.54 (8.92)	2099	2.97	5th (4L) Gear			173 (78.3)	73 (22.8)	84 (28.9)		28.940 (97.726)
220.54 (164.46)	11818 (52.57)	7.00 (11.26)	2099	2.31	6th (5L) Gear			173 (78.3)	73 (22.8)	83 (28.3)		28.940 (97.726)
216.30 (161.30)	10025 (44.59)	8.09 (13.02)	2099	1.82	7th (2H) Gear			173 (78.3)	73 (22.8)	82 (27.8)		28.940 (97.726)

LUGGING ABILITY IN 5th (4L) GEAR

Crankshaft Speed rpm	2099	1885	1675	1464	
Pull—lbs (kN)	15215 (67.68)	18512 (82.35)	21495 (95.62)	23671 (105.29)	At 1410 RPM the automatic transmission shifted down
Increase in Pull %	0	22	41	56	to 4th (3L) gear and the test
Power—Hp (kW)	224.92 (167.72)	243.56 (181.63)	249.05 (185.71)	237.62 (177.19)	was terminated.
Speed—Mph (km/h)	5.54 (8.92)	4.93 (7.94)	4.34 (6.99)	3.76 (6.06)	
Slip %	2.97	3.93	4.71	5.64	

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
Maximum Available Power—Two Hours	75.5
75% of Pull at Maximum Power—Ten Hours	75.5
50% of Pull at Maximum Power—Two Hours	75.5
50% of Pull at Reduced Engine Speed—Two Hours	74.5
Bystander in 10th (5H) Gear	104.0

Department of Agricultural Engineering

Dates of Test: August 27 to September 10, 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°)** 0.8269 **Fuel weight** 6.885 lbs/gal (0.825 kg/l) **Oil** SAE 15W-40 **API service classification** CD CC SE **To motor** 7.713 gal (29.198 l) **Drained from motor** 6.394 gal (24.206 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 85W90 **Total time engine was operated** 34.5 hours.

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger **Serial No.** 10972845 **Crankshaft** lengthwise **Rated rpm** 2100 **Bore and stroke** 5.5" × 6.0" (139.7 mm × 152.4 mm) **Compression ratio** 14.1 to 1 **Displacement** 855 cu in (14013 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** separate engine coolant heat exchangers for crankcase oil and transmission oil, separate radiators for hydraulic and transfer case oil **Fuel filter** two paper cartridges **Muffler** none **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** four wheel drive with duals **Serial No.** 154-00034 **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 76.9" (1953 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 245" (6.22 m) left 257" (6.53 m) **Turning space diameter** (on concrete surface without brake) right 513" (13.03 m) left 537" (13.64 m) **Power take-off** none.

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

TIRES, BALLAST AND WEIGHT**Rear Tires**—No., size, ply & psi (*kPa*)**Ballast**—Liquid (each)
—Test Equip. (each)**Front Tires**—No., size, ply & psi (*kPa*)**Ballast**—Liquid (each inner)
—Cast Iron (each)**Height of Drawbar****Static Weight with Operator—Rear**Front
Total**With Ballast**Four 23.1-34; 8; inner
14 (95) outer 12 (85)
None
155 lb (70 kg)Four 23.1-34; 8; inner
14 (95) outer 12 (85)
1138 lb (516 kg)
None

18.5 in (470 mm)

13640 lb (6187 kg)
20035 lb (9088 kg)
33675 lb (15275 kg)**Without Ballast**Four 23.1-34; 8; inner
14 (95) outer 12 (85)
None
NoneFour 23.1-34; 8; inner
14 (95) outer 12 (85)
None
None

18.5 in (470 mm)

13020 lb (5906 kg)
17760 lb (8056 kg)
30780 lb (13962 kg)

REMARKS: All test results were determined from observed data obtained in accordance with SAE, ASAE and ISO test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at injection pump was maintained 133°F (56.1°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. 1402.

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 Cummins Diesel