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Test 1452: Steiger Cougar III ST-250 Diesel (S/N 104-00331 and up) Also Steiger Cougar IV CM-250 Diesel 20-Speeds

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

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NEBRASKA TRACTOR TEST 1452 — STEIGER COUGAR III ST-250 DIESEL (SERIAL NUMBERS 104-00331 AND UP) ALSO STEIGER COUGAR IV CM-250 DIESEL 20 SPEED

DRAWBAR PERFORMANCE AT 2100 RPM

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 11th Gear											
211.20 (157.49)	ƒ2961 (57.65)	6.11 (9.83)	2100	2.72	13.931 (52.734)	0.460 (0.280)	15.16 (2.987)	179 (81.7)	52 (10.8)	56 (13.3)	29.105 (98.283)
75% of Pull at Maximum Power—Ten Hours 11th Gear											
169.26 (126.22)	9936 (44.20)	6.39 (10.28)	2184	2.26	11.758 (44.508)	0.484 (0.295)	14.40 (2.836)	180 (82.3)	68 (20.1)	75 (24.0)	28.518 (96.301)
50% of Pull at Maximum Power—Two Hours 11th Gear											
115.54 (86.16)	6625 (29.47)	6.54 (10.53)	2222	1.61	9.054 (34.273)	0.546 (0.332)	12.76 (2.514)	180 (82.2)	62 (16.7)	72 (22.2)	28.630 (96.679)
50% of Pull at Reduced Engine Speed—Two Hours 14th Gear											
115.43 (86.08)	6625 (29.47)	6.53 (10.52)	1515	1.69	7.584 (28.708)	0.458 (0.279)	15.22 (2.998)	180 (81.9)	64 (17.5)	75 (23.9)	28.560 (96.443)

MAXIMUM POWER IN SELECTED GEARS

185.40 (138.25)	29539 (131.39)	2.35 (3.79)	2159	14.48		4th Gear	179 (81.4)	51 (10.6)	53 (11.7)	28.670 (96.814)
198.49 (148.02)	26866 (119.51)	2.77 (4.46)	2099	9.62		5th Gear	180 (82.2)	55 (12.8)	64 (17.8)	29.000 (97.929)
203.25 (151.56)	23679 (105.33)	3.22 (5.18)	2099	6.64		6th Gear	180 (82.2)	55 (12.8)	64 (17.8)	29.000 (97.929)
210.87 (157.25)	21420 (95.28)	3.69 (5.94)	2101	5.19		7th Gear	180 (82.2)	55 (12.8)	64 (17.8)	29.010 (97.962)
212.58 (158.52)	19002 (84.53)	4.20 (6.75)	2100	4.49		8th Gear	180 (81.9)	55 (12.8)	62 (16.7)	29.030 (98.030)
215.04 (160.35)	16952 (75.41)	4.76 (7.66)	2101	3.77		9th Gear	180 (81.9)	55 (12.8)	62 (16.7)	29.050 (98.097)
215.33 (160.57)	14989 (66.67)	5.39 (8.67)	2101	3.13		10th Gear	180 (81.9)	55 (12.8)	62 (16.7)	29.060 (98.131)
215.98 (161.06)	13248 (58.93)	6.11 (9.84)	2103	2.81		11th Gear	180 (82.2)	54 (12.2)	61 (16.1)	29.070 (98.165)
214.35 (159.84)	11663 (51.88)	6.89 (11.09)	2100	2.64		12th Gear	180 (82.2)	55 (12.8)	64 (17.8)	28.990 (97.895)
214.12 (159.67)	10055 (44.73)	7.99 (12.85)	2098	2.15		13th Gear	180 (82.2)	56 (13.3)	64 (17.8)	28.980 (97.861)
212.49 (158.45)	8844 (39.34)	9.01 (14.50)	2098	2.07		14th Gear	180 (82.2)	56 (13.3)	64 (17.8)	28.970 (97.827)

LUGGING ABILITY IN 11th GEAR

Crankshaft Speed rpm	2103,	1886	1674	1468	1247	1047
Pull—lbs (kN)	13248 (58.93)	16256 (72.31)	16964 (75.46)	18119 (80.60)	18085 (80.45)	16240 (72.24)
Increase in Pull %	0	23	28	37	37	23
Power—Hp (kW)	215.98 (161.06)	236.03 (176.01)	218.24 (162.74)	203.71 (151.90)	172.60 (128.71)	130.83 (97.56)
Speed—Mph (km/h)	6.11 (9.84)	5.44 (8.76)	4.82 (7.76)	4.22 (6.79)	3.58 (5.76)	3.02 (4.86)
Slip %	2.81	3.45	3.61	4.09	4.09	3.61

TRACTOR SOUND LEVEL WITH CAB

	1700 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	76.0	77.0
75% of Pull at Maximum Power—Ten Hours		77.0
50% of Pull at Maximum Power—Two Hours		76.5
50% of Pull at Reduced Engine Speed—Two Hours		75.5
Bystander in 20th gear		100.5

Department of Agricultural Engineering

Dates of Test: September 21 to October 1, 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°)** 0.8373 **Fuel weight** 6.972 lbs/gal (0.836 kg/l) **Oil SAE 15W-40 API service classification** CD, CC, SF **To motor** 5.531 gal (20.938 l) **Drained from motor** 4.840 gal (18.323 l) **Transmission and hydraulic lubricant** SAE 10 hydraulic oil **Final drive lubricant** SAE 85W90 **Total time engine was operated** 32.5 hours.

ENGINE: Make Caterpillar Diesel **Type** six cylinder vertical with turbocharger and intercooler **Serial No.** 64Z00713 **Crankshaft** lengthwise **Rated rpm** 1700 to 2100 **Bore and stroke** 4.75" × 6.0" (121 mm × 152 mm) **Compression ratio** 15.0 to 1 **Displacement** 638 cu in (10455 ml) **Starting system** 12 volt **Lubrication pressure** **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for transmission and transfer case oil, radiator for hydraulic oil **Fuel filter** one paper cartridge **Muffler** none **Cooling medium temperature control** one thermostat.

CHASSIS: **Type** four wheel drive with duals **Serial No.** 104-02001 82 **Tread width** rear 79.0" (2007 mm) to 136.4" (3464 mm) front 79.0" (2007 mm) to 136.4" (3464 mm) **Wheel base** 128" (3251 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 74.2" (1885 mm) Vertical distance above roadway 44.6" (1132 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 (2.9) second 2.0 (3.3) third 2.3 (3.7) fourth 2.6 (4.2) fifth 3.0 (4.8) sixth 3.3 (5.4) seventh 3.8 (6.1) eighth 4.2 (6.8) ninth 4.8 (7.7) tenth 5.4 (8.6) eleventh 6.1 (9.8) twelfth 6.8 (11.0) thirteenth 7.9 (12.7) fourteenth 8.8 (14.2) fifteenth 10.1 (16.2) sixteenth 11.3 (18.1) seventeenth 12.6 (20.3) eighteenth 14.1 (22.7) nineteenth 16.0 (25.8) twentieth 17.9 (28.8) reverse 1.8 (2.9), 2.0 (3.3), 2.3 (3.7), 2.6 (4.2) **Clutch** multiple dry disc hydraulically operated by foot pedal **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 283" (7.19 m) left 288" (7.32 m) **Turning space diameter** (on concrete surface without brake) right 590" (14.99 m) left 600" (15.24 m) **Power take-off** none.

DRAWBAR PERFORMANCE AT 1700 RPM

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 11th Gear											
214.51 (159.96)	16447 (73.16)	4.89 (7.87)	1700	3.85	13.429 (50.833)	0.436 (0.265)	15.97 (3.147)	180 (81.9)	58 (14.4)	64 (17.8)	28.670 (96.814)
MAXIMUM POWER IN SELECTED GEARS											
208.50 (155.48)	29481 (131.14)	2.65 (4.27)	1890	14.67	6th Gear			179 (81.4)	53 (11.7)	56 (13.3)	28.660 (96.781)
204.27 (152.32)	26626 (118.44)	2.88 (4.63)	1703	9.05	7th Gear			180 (82.2)	55 (12.8)	64 (17.8)	29.010 (97.962)
208.74 (155.66)	28514 (104.59)	3.33 (5.36)	1700	6.26	8th Gear			180 (82.2)	55 (12.8)	63 (17.2)	29.020 (97.996)
216.87 (161.72)	21417 (95.27)	3.80 (6.11)	1702	5.19	9th Gear			180 (82.2)	55 (12.8)	62 (16.7)	29.040 (98.064)
217.35 (162.08)	18905 (84.09)	4.31 (6.94)	1700	4.33	10th Gear			180 (82.2)	55 (12.8)	62 (16.7)	29.050 (98.097)
218.30 (162.78)	16715 (74.35)	4.90 (7.88)	1699	3.77	11th Gear			180 (82.2)	55 (12.8)	62 (16.7)	29.060 (98.131)
218.45 (162.90)	14774 (65.72)	5.54 (8.92)	1702	3.29	12th Gear			180 (82.2)	55 (12.8)	64 (17.8)	28.990 (97.895)
217.59 (162.25)	12688 (56.44)	6.43 (10.35)	1701	2.72	13th Gear			180 (82.2)	56 (13.3)	64 (17.8)	28.980 (97.861)
216.95 (161.78)	11205 (49.84)	7.26 (11.69)	1699	2.40	14th Gear			180 (82.2)	56 (13.3)	64 (17.8)	28.970 (97.827)
216.40 (161.37)	9853 (43.83)	8.24 (13.25)	1702	2.07	15th Gear			180 (82.2)	56 (13.3)	64 (17.8)	28.960 (97.794)

TIRES, BALLAST AND WEIGHT

Rear Tires	—No., size, ply & psi (kPa)
Ballast	—Liquid (each)
	—Cast Iron (each)
Front Tires	—No., size, ply & psi (kPa)
Ballast	—Liquid (each)
	—Cast Iron (each)

Height of Drawbar

Static Weight with Operator—Rear	
—Front	
—Total	

Tested Without Ballast

Four 23.1-34; 8; inner 14 (95) outer 12 (85)
None
None
Four 23.1-34; 8; inner 14 (95) outer 12 (85)
None
None
17 in (430 mm)
12575 lb (5704 kg)
17390 lb (7888 kg)
29965 lb (13592 kg)

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 132°F (55.6°C). Eleven gears were chosen between 15% slip and 10 mph (16.1 km/h). The performance figures on this report apply to tractor chassis Serial No. 104-00331 and higher.

NOTE: Supplemental permit for Steiger Cougar IV CM-250 granted October, 1983.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1452.

LOUIS I. LEVITICUS
Engineer-in-Charge

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



Steiger Cougar III ST-250 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
Irvin T. Omtvedt, Dean and Director