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Test 1401: Steiger Cougar III ST-280 diesel 20-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1401

STEIGER COUGAR III ST-280 CUMMINS 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 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 12th Gear											
228.81 (170.62)	12455 (55.40)	6.89 (11.09)	2099	2.71	15.723 (59.516)	0.473 (0.288)	14.55 (2.867)	171 (76.9)	54 (11.9)	60 (15.3)	28.880 (97.523)
75% of Pull at Maximum Power—Ten Hours 12th Gear											
189.62* (141.40)	9658 (42.96)	7.36 (11.85)	2230	2.12	14.365 (54.376)	0.522 (0.317)	13.20 (2.600)	171 (76.9)	62 (16.4)	70 (20.8)	28.798 (97.247)
50% of Pull at Maximum Power—Two Hours 12th Gear											
129.78 (96.78)	6442 (28.66)	7.55 (12.16)	2277	1.55	11.747 (44.466)	0.623 (0.379)	11.05 (2.176)	168 (75.3)	66 (18.6)	73 (22.8)	28.925 (97.675)
50% of Pull at Reduced Engine Speed—Two Hours 16th Gear											
130.46 (97.29)	6452 (28.70)	7.58 (12.20)	1382	1.68	8.842 (33.469)	0.467 (0.284)	14.76 (2.907)	170 (76.4)	68 (20.0)	77 (24.7)	28.940 (97.726)

MAXIMUM POWER IN SELECTED GEARS

197.47 (147.25)	31517 (140.19)	2.35 (3.78)	2161	14.85	4th Gear	169 (76.1)	59 (15.0)	61 (16.1)	28.870 (97.490)
220.46 (164.40)	29827 (132.68)	2.77 (4.46)	2099	9.61	5th Gear	170 (76.7)	61 (16.1)	65 (18.3)	28.880 (97.523)
227.18 (169.41)	26568 (118.18)	3.21 (5.16)	2099	7.30	6th Gear	172 (77.5)	61 (16.1)	70 (21.1)	28.820 (97.321)
229.11 (170.85)	23393 (104.06)	3.67 (5.91)	2099	5.79	7th Gear	172 (77.5)	61 (16.1)	70 (21.1)	28.820 (97.321)
233.55 (174.16)	20949 (93.19)	4.18 (6.73)	2099	4.79	8th Gear	171 (77.2)	61 (16.1)	70 (21.1)	28.830 (97.355)
236.39 (176.27)	18706 (83.21)	4.74 (7.63)	2099	4.24	9th Gear	172 (77.8)	61 (16.1)	70 (21.1)	28.840 (97.388)
236.82 (176.60)	16530 (73.53)	5.37 (8.65)	2100	3.52	10th Gear	173 (78.3)	62 (16.7)	71 (21.7)	28.850 (97.422)
236.43 (176.31)	14552 (64.73)	6.09 (9.81)	2100	3.12	11th Gear	173 (78.3)	60 (15.6)	70 (21.1)	28.860 (97.456)
235.61 (175.69)	12832 (57.08)	6.89 (11.08)	2098	2.63	12th Gear	173 (78.3)	59 (15.0)	67 (19.4)	28.860 (97.456)
233.27 (173.95)	10963 (48.77)	7.98 (12.84)	2099	2.30	13th Gear	173 (78.3)	60 (15.6)	68 (20.0)	28.860 (97.456)
232.67 (173.50)	9672 (43.03)	9.02 (14.52)	2100	1.97	14th Gear	173 (78.3)	61 (16.1)	71 (21.7)	28.850 (97.422)

LUGGING ABILITY IN 12th GEAR

Crankshaft Speed rpm	2098	1889	1678	1468	1257	1056
Pull—lbs (kN)	12832 (57.08)	15482 (68.87)	17542 (78.03)	19145 (85.16)	18673 (83.06)	16873 (75.05)
Increase in Pull %	0	21	37	49	46	31
Power—Hp (kW)	235.61 (175.69)	254.55 (189.81)	254.73 (189.95)	242.26 (180.65)	202.46 (150.98)	154.31 (115.07)
Speed—Mph (km/h)	6.89 (11.08)	6.17 (9.92)	5.45 (8.76)	4.75 (7.64)	4.07 (6.54)	3.43 (5.52)
Slip %	2.63	3.20	3.84	4.32	4.16	3.84

TRACTOR SOUND LEVEL WITH CAB

	1700 RPM dB(A)	2100RPM dB(A)
Maximum Available Power—Two Hours	78.0	79.0
75% of Pull at Maximum Power—Ten Hours		79.0
50% of Pull at Maximum Power—Two Hours		79.0
50% of Pull at Reduced Engine Speed—Two Hours		78.0
Bystander in 20th gear		103.5

Department of Agricultural Engineering

Dates of Test: August 27 to September 9, 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 classi-**
fication CD CC SE **To motor** 7.850 gal (29.717 l)
Drained from motor 7.322 gal (27.717 l) **Trans-**
mission and hydraulic lubricant SAE 10 hyd-
raulic oil **Final drive lubricant** SAE 85W90 **Total**
time engine was operated 52.0 hours.

ENGINE: Make Cummins Diesel **Type** six
cylinder vertical with turbocharger **Serial No.**
10972835 **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 (14013 ml) **Starting sys-**
tem 12 volt **Lubrication** pressure **Air cleaner** two
paper elements with aspirator **Oil filter** one full
flow cartridge and one bypass cartridge **Oil cool-**
er engine coolant heat exchanger for crankcase
oil, radiator for hydraulic oil, radiator for trans-
mission 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. 110-00026 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** 128" (3251
mm) **Center of gravity** (without operator or bal-
last, 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 45.4"
(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 **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) fif-
teenth 10.1 (16.2) sixteenth 11.3 (18.1) seven-
teenth 12.6 (20.3) eighteenth 14.1 (22.7)
nineteenth 16.0 (25.8) twentieth 17.9 (28.8) re-
verse 1.8 (2.9), 2.0 (3.3), 2.3 (3.7), 2.6 (4.1) **Clutch**
dual 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 279" (7.09
m) left 278" (7.06 m) **Turning space diameter** (on
concrete surface without brake) right 583" (14.80
m) left 581" (14.76 m) **Power take-off** none.

REPAIRS and ADJUSTMENTS: No repairs or
adjustments.

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 12th Gear											
249.69 (186.19)	16962 (75.45)	5.52 (8.88)	1700	3.64	15.541 (58.829)	0.429 (0.261)	16.07 (3.165)	176 (79.7)	57 (13.9)	65 (18.1)	28.890 (97.557)

MAXIMUM POWER IN SELECTED GEARS

225.35 (168.04)	31335 (139.38)	2.70 (4.34)	1700	14.60	7th Gear			173 (78.3)	63 (17.2)	67 (19.4)	28.890 (97.557)
241.09 (179.78)	27610 (122.82)	3.27 (5.27)	1701	8.18	8th Gear			175 (79.4)	61 (16.1)	70 (21.1)	28.830 (97.355)
248.21 (185.09)	24789 (110.27)	3.75 (6.04)	1700	6.17	9th Gear			175 (79.4)	61 (16.1)	70 (21.1)	28.840 (97.388)
252.78 (188.50)	22169 (98.61)	4.28 (6.88)	1699	5.25	10th Gear			175 (79.4)	62 (16.7)	71 (21.7)	28.850 (97.422)
255.17 (190.28)	19645 (87.39)	4.87 (7.84)	1701	4.39	11th Gear			177 (80.6)	61 (16.1)	71 (21.7)	28.860 (97.456)
255.77 (190.73)	17390 (77.35)	5.52 (8.88)	1699	3.76	12th Gear			176 (80.0)	60 (15.6)	68 (20.0)	28.860 (97.456)
256.45 (191.23)	15003 (66.74)	6.41 (10.32)	1701	3.04	13th Gear			177 (80.3)	60 (15.6)	69 (20.6)	28.860 (97.456)
255.66 (190.64)	13233 (58.86)	7.25 (11.66)	1700	2.79	14th Gear			177 (80.3)	61 (16.1)	71 (21.7)	28.850 (97.422)
254.00 (189.41)	11612 (51.65)	8.20 (13.20)	1698	2.47	15th Gear			176 (80.0)	61 (16.1)	71 (21.7)	28.850 (97.422)

TIRES, BALLAST AND WEIGHT

Rear Tires		—No., size, ply & psi (kPa)	With Ballast Four 23.1-34; 8; inner 14 (95) outer 12 (85)	Without Ballast Four 23.1-34; 8; inner 14 (95) outer 12 (85)
Ballast		—Liquid (each) —Test Equip. (each)	None 80 lb (36 kg)	None None
Front Tires		—No., size, ply & psi (kPa)	Four 23.1-34; 8; inner 14 (95) outer 12 (85) 1152 lb (523 kg)	Four 23.1-34; 8; inner 14 (95) outer 12 (85) None None
Ballast		—Liquid (each inner) —Cast Iron (each)	None	None
Height of Drawbar			18.5 in (470 mm)	18.5 in (470 mm)
Static Weight with Operator—Rear			12820 lb (5815 kg)	12500 lb (5670 kg)
Front			20285 lb (9201 kg)	17980 lb (8156 kg)
Total			33105 lb (15016 kg)	30480 lb (13826 kg)

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 was maintained at 133°F (56.1°C) Eleven 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. 1401.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

W. E. SPLINTER

L. L. BASHFORD

Board of Tractor Test Engineers



Steiger Cougar III ST-280 Cummins Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska—Lincoln
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